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SPECIAL REPORT

Number 119

SATELLITE ORBITAL DATA

No. E-2

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SAO Special Report No. 119

SATELLITE ORBITAL DATA

No. E-2

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**Smithsonian Institution
Astrophysical Observatory**

Cambridge 38, Massachusetts

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¹ The precisely reduced observations on which the orbital elements in this issue are based appear in catalogues P-3 through P-9.

3. *Antennae*—*Antennae*—*Antennae*

THESE TWO LINES ARE FOR THE USE OF THE POLICE DEPARTMENT ONLY.

ORBITAL INFORMATION¹

The orbital elements have been derived by the indicated staff members of the Satellite Tracking Program, Smithsonian Astrophysical Observatory, employing the SAO Differential Orbit Improvement Program (DOI).

As opposed to osculating elements, the elements presented here are mean elements in the sense that the effects of the short-period perturbations due to the earth's oblateness have been eliminated.

SAO mean elements have been derived from observations covering several days, and are given in the form of a table. The successive sets of elements are essentially independent of each other. They are dependent, however, in the sense that high-order coefficients in the secular and the long-periodic terms are generally considered as known and as constant for periods of several weeks or months, as dictated by convenience.

The times of epoch in the mean elements are reckoned in Julian Days, but for the sake of convenience the number 2400000.5 has been subtracted to provide an abbreviated notation which we call "Modified Julian Days," or "MJD."

The units of the orbital elements are degrees for angular quantities, megameters ($Mm = 10^6$ meters) for linear quantities, and revolutions for the mean anomaly M and its derivatives.

The tabulated values of the SAO mean elements give the values of arguments of perigee ω ; right ascension of the ascending node Ω ; inclination i ; eccentricity e ; and mean anomaly M as functions of time $t = T - T_0$ (where T_0 is the reference epoch) expressed in days. The two-digit number placed at the right of each value represents the standard error for that element and refers to the last digits given.

The same tabulation also gives the mean (anomalistic) motion n ; the orbital acceleration $n'/2$ or $n' (dn/dt)$, and the semimajor axis a or the geocentric distance of perigee q (in megameters). Of the last three columns, the one headed N indicates the number of observations used for the computation of a set of elements; the one headed D , the number of days used; and the one headed σ , the standard error of the representation of the observations relative to their assumed accuracy.

SAO smoothed elements have been derived from observations covering about two weeks. They are given as functions of time and generally include both secular and periodic terms. The general expression for any element E is

$$E = E_0 + E_1 t + E_2 t^2 + \dots + A_1 \sin(B_1 + C_1 t),$$

where $t = T - T_0$ is again expressed in days. The presence of a standard error associated with a particular coefficient indicates that this quantity was determined by the process of differential orbit improvement; the absence of a standard error means that the quantity was taken from some other source.

¹ This work was supported by grant NsG 87-60 from the National Aeronautics and Space Administration.

In our computer program, the inclination and the argument of perigee are referred to the true equator of date; the right ascension of the ascending node, however, is reckoned from the mean equinox of 1950.0 along the corresponding mean equator to the intersection with the moving true equator of date, and then along the true equator of date. To transform from right ascension of the node as determined by the DOI to right ascension of the node referred to the mean equinox of date, one uses

$$\Omega^\circ = \Omega^\circ(\text{DOI}) + 3.508 \times 10^{-5} (\text{MJD} - 33281),$$

where MJD stands for the Modified Julian Day of the date.

The mean (anomalistic) motion n can be obtained from the smoothed elements by differentiating the expression for M , and the orbital acceleration n' can be obtained by twice differentiating the same expression for M .

Satellite 1959 Alpha 1

SAO MEAN ELEMENTS

1 January - 28 February 1960

T (MJD)	w	Ω	i	e	M	n	n'/2	q	N	D	σ
36934.0											
36936.0											
36938.0											
36940.0	39.6843	74	128.9432	25	32.8739	07	•165417	10	•835639	13	•853E-5
36942.0	50.2212	40	121.9220	08	32.8735	02	•165653	14	•759068	07	•680E-5
36944.0	60.7285	36	114.9010	07	32.8733	02	•165681	32	•682578	10	•767E-5
36946.0											
36948.0											
36950.0											
36952.0											
36954.0											
36956.0											
36958.0	134.4021	33	65.7555	14	32.8770	09	•165445	12	•148557	07	•993E-5
36960.0	144.9288	16	58.7346	06	32.8777	04	•165362	06	•072550	04	•11055E-4
36962.0	155.4702	17	51.7153	07	32.8793	07	•165301	07	•96593	04	•11.462044
36964.0	166.0142	19	44.6961	06	32.8811	06	•165231	08	•920730	04	•11.462088
36966.0	176.5501	34	37.6751	12	32.8819	08	•165196	17	•845017	12	•11.462166
36968.0	187.079	16	30.6593	24	32.8847	11	•165248	61	•769478	69	•11.462174
36970.0	197.636	19	23.6391	29	32.8848	10	•165120	66	•693958	81	•11.462318
36972.0	208.237	27	16.6190	30	32.8856	08	•164924	70	•61842	11	•11.462281
36974.0	218.779	19	9.6012	20	32.8864	05	•164898	49	•543206	79	•11.462329
36976.0	229.3733	19	2.5839	12	32.8874	03	•164727	09	•467848	05	•11.462396
36978.0	239.9454	12	355.5641	09	32.8882	02	•164685	07	•392668	02	•11.462426
36980.0	250.5191	10	348.5459	08	32.8887	02	•164657	05	•317546	02	•11.462453
36982.0	261.0988	10	341.5277	08	32.8885	01	•164626	06	•242458	03	•11.462477
36984.0	271.6708	17	334.5082	08	32.8884	01	•164644	06	•167479	06	•11.462501
36986.0	282.2561	08	327.4884	06	32.8881	01	•164649	05	•092510	01	•11.462537
36988.0	292.8362	06	320.4697	06	32.8876	01	•164657	04	•017614	01	•11.462568
36990.0	303.4095	08	313.4511	06	32.8865	01	•164679	06	•942784	02	•11.462593
36992.0	313.9862	08	306.4314	05	32.8855	01	•164697	05	•868007	02	•11.462634

Satellite 1959 Alpha 1

1 March - 30 April 1960

T (MJD)	w	Q	i	e	M	n	m ^{1/2}	q	N	D	σ	
36994.0	324.5575	10	299.4130	06	32.8840	02	1.64750	04	*793313	02	11.462673	01
36996.0	335.1290	09	292.3937	06	32.8828	02	1.64810	05	*718699	02	11.462716	01
36998.0	345.6952	08	285.3737	05	32.8814	02	1.64897	04	*644182	02	11.462760	01
37000.0	356.2582	10	278.3529	06	32.8799	02	1.64976	06	*569746	02	11.462803	01
37002.0	6.8154	12	271.3320	06	32.8784	03	1.65050	09	*495394	03	11.462843	02
37004.0	17.3616	15	264.3113	08	32.8764	05	1.65134	11	*421145	04	11.462895	02
37006.0	27.9028	15	257.2900	10	32.8750	05	1.65234	12	*346192	04	11.462931	02
37008.0	38.4373	22	250.2704	15	32.8743	05	1.65307	13	*272894	06	11.462965	04
37010.0	48.9720	35	243.2463	18	32.8727	04	1.65347	10	*198869	12	11.463011	05
37012.0	59.5020	17	236.2230	12	32.8717	04	1.65393	09	*124930	05	11.463051	02
37014.0	70.0282	19	229.1996	10	32.8708	04	1.65423	08	*051079	06	11.463080	03
37016.0	80.5571	13	222.1768	09	32.8704	03	1.65429	08	*977284	03	11.463124	02
37018.0	91.0872	09	215.1534	07	32.8707	03	1.65428	06	*903569	03	11.463169	02
37020.0	101.6123	07	208.1291	07	32.8713	02	1.65426	05	*829964	02	11.463225	01
37022.0	112.1351	19	201.1077	16	32.8720	04	1.65355	10	*756451	05	11.463282	03
37024.0	122.6579	12	194.0857	08	32.8724	02	1.65318	05	*683104	03	11.463345	02
37026.0	133.2033	12	187.0653	05	32.8728	02	1.65258	04	*609925	04	11.463474	02
37028.0	143.7135	15	180.0455	07	32.8741	03	1.65127	05	*537136	05	11.463562	02
37030.0	154.2628	16	173.0228	06	32.8753	02	1.65069	05	*464338	06	11.463633	03
37032.0	164.8137	12	166.0010	05	32.8766	02	1.64984	03	*391657	04	11.463687	02
37034.0	175.3733	20	158.9800	08	32.8776	02	1.64886	05	*319076	06	11.463736	03
37036.0	185.9385	21	151.9596	10	32.8783	03	1.64782	06	*246615	06	11.463801	03
37038.0	196.5066	18	144.9381	07	32.8792	02	1.64692	06	*174289	06	11.463873	03
37040.0	207.0787	18	137.9157	07	32.8802	02	1.64615	07	*102095	06	11.463944	02
37042.0	217.6474	21	130.8948	07	32.8812	02	1.64562	07	*030061	08	11.463999	03
37044.0	228.2267	16	123.8747	06	32.8819	02	1.64501	07	*958136	06	11.464079	03
37046.0	238.8090	20	116.8539	07	32.8825	02	1.64464	06	*886348	07	11.464137	04
37048.0	249.3997	41	109.8319	09	32.8828	02	1.64425	06	*814664	14	11.464194	06
37050.0	259.9760	29	102.8090	10	32.8830	02	1.64408	07	*743183	10	11.464283	04
37052.0	270.5630	23	95.7877	09	32.8835	02	1.64384	07	*671807	08	11.464365	05
37054.0	281.1425	15	88.7621	09	32.8841	03	1.64373	06	*600595	06	11.464434	03
37056.0	291.7318	17	81.7392	09	32.8845	03	1.64371	06	*537595	06	11.464473	03

^T (MJD)	ω	Ω	i	e	M	n	$n'/2$	q	N	D	σ	
37056.0	291.7165	20	81.7471	09	32.8841	03	•164410	08	•529563	08	11.464493	03
37058.0	302.2992	15	74.7279	05	32.8843	02	•164405	05	•458599	06	11.464547	03
37060.0	312.8811	27	67.7068	09	32.8837	03	•164444	06	•387744	09	11.464602	04
37062.0	323.4665	49	60.6865	14	32.8831	03	•164478	09	•316995	15	11.464667	06
37064.0	334.0442	35	53.6661	08	32.8829	03	•164557	06	•246428	11	11.464763	04
37066.0							•2165E-4	18	6.939570	31	8	3.62
37068.0	355.1824	45	39.6228	10	32.8818	02	•164692	08	•105905	15	11.464980	06
37070.0	5.7373	31	32.6013	10	32.8807	02	•164761	06	•035939	10	11.465069	06
37072.0	16.2839	30	25.5797	09	32.8795	02	•164827	06	•966136	10	11.465136	06
37074.0	26.8264	23	18.5564	06	32.8783	02	•164914	03	•896492	07	11.465208	03
37076.0	37.3763	32	11.5359	09	32.8759	04	•164982	04	•826937	10	11.465279	04
37078.0	47.9098	37	4.5120	09	32.8747	05	•165057	03	•757557	11	11.465323	05
37080.0	58.4511	33	357.4884	08	32.8739	04	•165115	03	•688286	10	11.465399	05
37082.0	68.9750	43	350.4651	09	32.8730	05	•165148	04	•619199	13	11.465499	06
37084.0	79.5020	63	343.4404	08	32.8727	05	•165153	04	•550253	21	11.465567	10
37086.0	90.0172	75	336.4156	08	32.8730	06	•165153	04	•481505	25	11.465664	10
37088.0	100.5659	65	329.3922	09	32.8727	07	•165136	05	•412801	21	11.465704	08
37090.0	111.1087	70	322.3682	15	32.8730	08	•165109	04	•344294	23	11.465782	18
37092.0	121.6495	59	315.3423	10	32.8730	05	•165064	03	•275978	18	11.465885	10
37094.0	132.1873	38	308.3179	06	32.8748	03	•164999	02	•207883	12	11.466610	05
37096.0	142.7232	50	301.2921	06	32.8757	02	•164924	02	•140013	16	11.466610	06
37098.0	153.2721	34	294.2674	05	32.8765	02	•164845	02	•072304	11	11.466618	05
37100.0	163.8339	45	287.2436	12	32.8773	04	•164763	04	•004753	15	11.466628	06
37102.0	174.3819	29	280.2198	07	32.8786	03	•164672	03	•937440	09	11.466635	04
37104.0	184.9436	16	273.1966	04	32.8801	02	•164580	02	•870250	05	11.466441	02
37106.0	195.5157	17	266.1748	05	32.8811	02	•164513	03	•803178	05	11.466499	03
37108.0	206.0913	16	259.1520	05	32.8819	02	•164448	03	•736228	05	11.466550	03
37110.0	216.6720	16	252.1300	05	32.8824	02	•164401	04	•669378	05	11.466602	02
37112.0	227.2584	17	245.1078	06	32.8828	02	•164367	05	•602631	06	11.466656	02
37114.0	237.8379	22	238.0830	08	32.8827	03	•164312	07	•536043	08	11.466738	04

T (MD)	w	Ω	i	e	M	n	n'/2	q	N	D	σ	
371116.0	248.4165	11	231.0574	11	32.8830	03	*164252 09	*469614 11	11.466826	04	*1972E-4 22	6.941276 53
371118.0	258.9921	32	224.0313	10	32.8821	02	*164226 06	*403357 11	11.466886	04	*1847E-4 15	6.941437 35
37120.0	269.6107	37	217.0079	07	32.8818	02	*164260 07	*337074 14	11.466918	05	*1913E-4 23	6.941138 29
37122.0	280.2109	49	209.9831	07	32.8811	02	*164295 10	*271017 19	11.467072	15	*1798E-4 31	6.940783 22
37124.0	290.8169	43	202.9617	07	32.8809	01	*164392 14	*205068 18	11.467090	06	*1732E-4 11	6.939973 27
37126.0	301.3661	12	195.9377	15	32.8813	02	*164316 41	*139503 51	11.467211	23	*1665E-4 12	6.940558 27
37128.0	311.9483	67	188.9115	11	32.8807	02	*164360 23	*073931 28	11.467269	12	*1841E-4 23	6.940165 31
37130.0	322.5168	35	181.8868	11	32.8798	02	*164385 07	*008549 13	11.467353	06	*2017E-4 15	6.939923 39
37132.0	333.0862	23	174.8613	07	32.8789	02	*164425 03	*943326 08	11.467414	04	*2074E-4 13	6.939566 40
37134.0	343.6648	19	167.8360	06	32.8780	02	*164494 02	*878231 06	11.467501	03	*2025E-4 11	6.938958 46
37136.0	354.2409	16	160.8101	05	32.8774	02	*164576 02	*813304 06	11.467583	02	*20811E-4 98	6.938247 60
37138.0	4.8093	20	153.7850	06	32.8766	02	*164659 03	*748564 07	11.467679	03	*1975E-4 11	6.937520 61
37140.0	15.3763	13	146.7607	04	32.8760	02	*164760 02	*683982 04	11.467752	02	*18495E-4 80	6.926647 72
37142.0	25.9352	14	139.7351	05	32.8752	02	*164854 03	*619573 04	11.467836	02	*17819E-4 86	6.925836 76
37144.0	36.4842	16	132.7087	06	32.8742	02	*164929 04	*555336 05	11.467919	02	*1854E-4 12	6.925181 63
37146.0	47.0328	14	125.6817	05	32.8732	02	*165002 04	*491247 05	11.468004	02	*1903E-4 13	6.934539 57
37148.0	57.5707	22	118.6539	08	32.8724	03	*165054 07	*427342 07	11.468088	04	*1604E-4 10	6.934073 41
37150.0	68.1051	13	111.6273	05	32.8722	02	*165092 05	*363569 04	11.468144	02	*1513E-4 11	6.933735 32
37152.0	78.6404	29	104.6008	09	32.8719	03	*165152 10	*299906 10	11.468201	05	*1484E-4 19	6.933211 30
37154.0	89.1724	53	97.5713	16	32.8721	04	*165202 14	*236381 17	11.468267	08	*1603E-4 32	6.932804 30
37156.0	99.6771	11	90.5425	17	32.8725	05	*165165 14	*173078 40	11.468401	09	*2031E-4 24	6.933058 27
37158.0	110.3216	83.5156	53	32.8722	13	*165105 43	*10939 23	11.468489	84	*2371E-4 45	6.933519 28	
37160.0	120.8374	76.4873	42	32.8734	14	*165123 21	*04639 16	11.468671	81	*3014E-4 37	6.933296 35	
37162.0	131.2943	69.4579	29	32.8750	13	*165029 15	*98386 13	11.468567	65	*4011E-4 35	6.934119 46	
37164.0	141.8551	67	62.4300	15	32.8759	09	*164956 09	*921250 62	11.468806	17	*4319E-4 23	6.934624 54
37166.0	152.4001	26	55.4021	06	32.8770	05	*164852 08	*859054 09	11.468955	04	*4252E-4 19	6.935432 58
37168.0												
37170.0												
37172.0	184.0975	17	34.3146	11	32.8812	05	*164610 09	*674132 04	11.469347	01	*2341E-4 15	6.937285 40
37174.0	194.6761	21	27.2871	16	32.8829	04	*164547 08	*612896 04	11.469425	02	*2266E-4 18	6.937777 28
37176.0												

T (MJD)	ω	Ω	i	e	M	n	n'/2	q	N	D	σ	
37178.0	215.8375	13	13.2317	10	32.8855	02	.164397	05	.490945	02	11.469587	01
37180.0	226.4241	15	6.2034	12	32.8862	03	.164342	07	.430179	03	11.469652	01
37182.0	237.0124	16	359.1757	13	32.8869	03	.164316	09	.369556	03	11.469728	02
37184.0	247.5953	12	352.1485	11	32.8875	03	.164276	10	.309128	03	11.469827	01
37186.0	258.2023	32	345.1217	12	32.8879	12	.164283	13	.248798	09	11.469953	06
37188.0	268.7726	14	338.0937	11	32.8880	03	.164271	10	.188799	03	11.470013	02
37190.0	279.3681	09	331.0669	08	32.8881	02	.164267	07	.128960	02	11.470147	09
37192.0	289.9626	10	324.0392	08	32.8876	02	.164267	06	.069397	02	11.470291	02
37194.0	300.5519	10	317.0113	09	32.8869	02	.164293	06	.010126	02	11.470438	08
37196.0	311.1407	38	309.9841	13	32.8861	02	.164339	10	.951147	16	11.470595	23
37198.0	321.7273	32	302.9550	12	32.8849	03	.164376	12	.892480	13	11.470740	10
37200.0	332.3051	16	295.9265	16	32.8833	04	.164443	08	.834131	03	11.470890	01
37202.0	342.8840	39	288.8988	16	32.8812	06	.164497	11	.776041	15	11.471038	15
37204.0	353.4665	12	281.8671	10	32.8803	05	.164580	06	.718198	02	11.471128	01
37206.0	4.0386	11	274.8355	06	32.8794	05	.164671	06	.660579	02	11.471230	01
37208.0	14.6079	19	267.8052	07	32.8772	08	.164775	13	.603141	03	11.471330	02
37210.0	25.1733	32	260.7716	11	32.8766	10	.164851	16	.545890	06	11.471417	02
37212.0												
37214.0												
37216.0												
37218.0												
37220.0	77.9001	11	225.6098	07	32.8719	02	.165150	05	.262560	02	11.471902	01
37222.0	88.4417	10	218.5750	06	32.8713	02	.165151	04	.206453	02	11.471991	01
37224.0	98.9801	20	211.5415	09	32.8716	03	.165140	06	.150524	03	11.472079	02
37226.0	109.5237	16	204.5080	06	32.8720	03	.165092	05	.094755	03	11.472154	01
37228.0	120.0656	16	197.4744	06	32.8726	03	.165042	04	.039139	03	11.472224	01
37230.0	130.6067	25	190.4410	08	32.8729	03	.164971	05	.983655	05	11.472265	03
37232.0	141.1568	23	183.4089	10	32.8732	03	.164897	05	.928237	04	11.472316	02
37234.0	151.7085	20	176.3754	07	32.8741	02	.164814	04	.872926	04	11.472352	02
37236.0	162.2750	13	169.3430	04	32.8751	02	.164731	03	.817669	03	11.472391	01
37238.0	172.8457	15	162.3109	05	32.8761	02	.164639	03	.762488	03	11.472427	01

T (MJD)	w	Q	i	e	M	n	n'/2	q	N	D	σ	
37240.0	183.4204	22	155.2784	07	32.8770	02	.164548	04	.707382	04	.11.472469	02
37242.0	193.9286	20	148.2453	08	32.8779	02	.164437	05	.652360	04	.11.472511	02
37244.0	204.5831	26	141.2136	12	32.8784	04	.164411	18	.597400	08	.11.472549	04
37246.0	215.1769	45	134.1779	19	32.8809	09	.164306	04	.542565	14	.11.472595	07
37248.0	225.7659	36	127.1463	09	32.8816	06	.164263	26	.487836	13	.11.472658	04
37250.0												
37252.0												
37254.0	257.5666	46	106.0498	08	32.8843	03	.164191	09	.324581	11	.11.472928	03
37256.0	268.1612	29	99.0162	09	32.8853	02	.164147	08	.270511	06	.11.472989	03
37258.0	278.7593	15	91.9847	07	32.8857	02	.164142	05	.216534	03	.11.473040	02
37260.0	289.3560	16	84.9529	09	32.8860	02	.164149	04	.162657	03	.11.473083	01
37262.0	299.9496	14	77.9207	07	32.8859	02	.164186	04	.108865	03	.11.473122	01
37264.0	310.5424	15	70.8894	06	32.8856	02	.164230	04	.055144	03	.11.473153	01
37266.0	321.1361	16	63.8577	06	32.8850	02	.164281	04	.001487	03	.11.473186	01
37268.0	331.7307	26	56.8259	09	32.8843	03	.164351	05	.947889	05	.11.473218	03
37270.0	342.3186	42	49.7947	16	32.8835	04	.164426	08	.894370	10	.11.473261	04
37272.0	352.8935	55	42.7633	33	32.8824	05	.164533	95	.840964	30	.11.473326	13
37274.0												
37276.0												
37278.0												
37280.0	35.1580	71	14.6326	32	32.8778	14	.164705	95	.628571	14	.11.473554	08
37282.0	45.7114	54	7.5960	09	32.8779	06	.164822	06	.575728	08	.11.473596	04
37284.0	56.2602	16	.5614	03	32.8777	03	.164943	03	.522963	04	.11.473640	02
37286.0	66.8206	62	353.5284	10	32.8776	11	.164963	09	.470265	15	.11.473688	06
37288.0	77.3584	30	346.4931	07	32.8763	08	.164981	04	.417680	08	.11.473705	05
37290.0												
37292.0												
37294.0												
37296.0												
37298.0												

Satellite 1959 Alpha 1

1 January - 28 February 1961

(MJD)	ω	Ω	1	e	M	n	$n^{1/2}$	q	N	D	σ	
37300.0												
37302.0	161.7585	44	290.2189	16	32.8783	03	1644628	04	*998028	10	11.473830	03
37304.0	172.3237	51	283.1862	12	32.8787	03	164534	03	*945700	12	11.473837	06
37306.0	182.9020	45	276.1520	12	32.8799	03	1644447	03	*892388	10	11.473854	05
37308.0	193.4788	38	269.1192	11	32.8810	02	164368	03	*841121	09	11.473873	04
37310.0	204.0684	32	262.0859	09	32.8814	02	164299	03	*788851	07	11.473872	03
37312.0	214.6618	33	255.0518	08	32.8817	02	164241	03	*736595	07	11.473877	03
37314.0	225.2610	20	248.0193	06	32.8816	02	164191	02	*684347	04	11.473889	02
37316.0	235.8564	20	240.9847	06	32.8821	02	164142	02	*632134	04	11.473899	02
37318.0	246.4487	25	233.9507	07	32.8823	02	164105	02	*579950	06	11.473910	02
37320.0	257.0456	34	226.9163	10	32.8826	03	164078	03	*527780	08	11.473920	03
37324.0												
37326.0												
37328.0	299.4485	38	198.7824	07	32.8818	03	164149	03	*319265	09	11.473957	04
37330.0	310.0467	33	191.7472	06	32.8815	03	164185	02	*267196	08	11.473964	04
37332.0	320.6501	45	184.7131	12	32.8814	03	164228	03	*215136	10	11.473976	04
37334.0	331.2434	28	177.6797	07	32.8806	02	164275	06	*163126	02	11.474007	03
37336.0	341.8346	29	170.6450	13	32.8797	02	164327	03	*111168	06	11.474041	03
37338.0	352.4143	27	163.6124	08	32.8788	02	164400	02	*059266	06	11.474055	03
37340.0	2.9923	32	156.5793	09	32.8781	02	164485	02	*007392	07	11.474070	03
37342.0	13.5651	27	149.5468	08	32.8772	02	164576	02	*955546	06	11.474081	02
37344.0	24.1321	28	142.5130	10	32.8766	02	164666	02	*903732	06	11.474092	03
37346.0	34.6994	26	135.4764	13	32.8755	03	164748	03	*851943	06	11.474118	02
37348.0	45.2561	31	128.4431	19	32.8739	04	164824	05	*800200	07	11.474140	03
37350.0	55.8057	54	121.4099	15	32.8724	03	164886	10	*748498	10	11.474162	04
37352.0	66.386	17	114.3728	26	32.8724	06	164867	34	*696768	30	11.474165	15
37354.0	76.919	12	107.3360	22	32.8727	07	164921	23	*645133	22	11.474196	09
37356.0	87.428	21	100.3015	25	32.8726	10	165006	36	*593554	38	11.474233	23

T (MJD)	ω	Ω	e	M	Δ	$n^{1/2}$	q	N	D	σ
37360.0	98.0012	71	93.22637	10	32.8735	10	•164987	06	•541874	15
37362.0	108.5614	91	86.2264	08	32.8718	11	•165028	22	•490113	18
37364.0	119.108	11	79.1932	28	32.8767	22	•16507	11	•438642	13
37366.0	129.657	15	72.1555	43	32.8761	21	•16502	12	•387048	12
37368.0	140.207	20	65.1181	64	32.8757	22	•16489	16	•335455	15
37370.0	150.765	12	58.0852	23	32.8775	07	•164819	93	•283857	09
37372.0	161.3210	60	51.0521	16	32.8792	04	•164708	39	•232267	10
37374.0	171.8792	40	44.0164	18	32.8806	04	•164537	17	•180663	08
37376.0	182.4544	22	36.9826	09	32.8824	02	•164485	04	•129053	04
37378.0	193.0366	24	29.9495	09	32.8839	02	•164417	13	•077430	05
37380.0	203.6300	27	22.9135	09	32.8852	02	•164340	05	•025792	05
37382.0	214.2146	24	15.8822	07	32.8862	02	•164261	04	•974179	05
37384.0	224.8087	28	8.8500	08	32.8873	02	•164193	06	•922552	06
37386.0	235.4004	33	1.8182	08	32.8877	02	•164146	08	•870947	08
37388.0	245.9975	44	354.7859	07	32.8881	02	•164119	12	•819347	10
37390.0	256.5959	50	347.7528	07	32.8886	03	•164116	13	•767766	12
37392.0	267.1979	28	340.7206	07	32.8880	02	•164117	08	•716191	07
37394.0	277.7969	52	333.6872	11	32.8876	05	•164036	77	•664617	36
37396.0	288.3975	20	326.5533	07	32.8875	03	•164132	05	•613107	04
37398.0	298.9981	13	319.6201	06	32.8871	03	•164148	03	•561578	03
37400.0	309.5951	13	312.5867	05	32.8855	04	•164176	04	•510069	03
37402.0	320.1855	21	305.5520	05	32.8848	05	•164214	08	•458584	04
37404.0	330.7806	41	298.5168	09	32.8825	06	•164310	15	•407104	09
37406.0	341.397	18	291.4843	14	32.8808	08	•164322	14	•355521	87
37408.0	351.942	42	284.4530	59	32.8819	39	•16461	21	•30425	19
37410.0	2.537	20	277.4150	15	32.8787	06	•164568	98	•252741	93
37412.0	13.121	15	270.3803	13	32.8772	04	•164632	66	•201293	67
37414.0	23.704	12	263.3451	14	32.8761	03	•164650	43	•149843	51
37416.0	34.2418	16	256.3058	10	32.8748	03	•164808	10	•098605	05
37418.0	44.7947	15	249.2678	08	32.8738	03	•164860	07	•047293	03

Satellite 1959 Alpha 1

1 May - 30 June 1961

(MJD)	T	w	Ω	1	e	M	n	n'	q	N	D	σ
37420.0	55.3424	17	242.2367	10	32.87727	03	.164920	08	.995999	02	11.474353	01
37422.0	65.8867	14	235.1976	08	32.87722	03	.164982	08	.944718	02	11.474368	01
37424.0	76.4229	15	228.1659	10	32.8717	02	.165004	07	.893466	02	11.474381	01
37426.0	86.9660	13	221.1289	08	32.8712	02	.165005	08	.842222	02	11.474378	01
37428.0	97.5108	12	214.0943	07	32.8711	02	.164995	09	.790982	02	11.474379	01
37430.0	108.0569	08	207.0585	06	32.8716	02	.164971	06	.739744	01	11.474382	01
37432.0	118.6034	07	200.0230	06	32.8720	01	.164914	04	.688510	01	11.474386	01
37434.0	129.1532	09	192.9864	07	32.8723	02	.164860	04	.637284	02	11.474388	01
37436.0	139.7074	07	185.9501	07	32.8731	02	.164790	04	.586057	02	11.474386	01
37438.0	150.2667	09	178.9142	06	32.8738	02	.164714	04	.534828	02	11.474382	01
37440.0	160.8333	09	171.8785	05	32.8751	02	.164629	04	.483588	02	11.474383	01
37442.0	171.4027	14	164.8443	07	32.8763	02	.164544	07	.432355	03	11.474387	01
37444.0	181.9723	27	157.8104	12	32.8775	02	.164433	17	.381136	05	11.474394	02
37446.0	192.5468	77	150.7725	44	32.8788	02	.164360	70	.329951	15	11.474408	06
37448.0	203.165	16	143.7402	40	32.8794	06	.16444	20	.278696	36	11.474398	18
37450.0	213.7425	35	136.7013	17	32.8813	02	.164199	28	.227491	14	11.474404	05
37452.0	224.3310	32	129.6709	10	32.8823	02	.164143	18	.176290	15	11.474391	05
37454.0	234.9289	09	122.6382	06	32.8832	01	.164093	05	.125071	03	11.474390	01
37456.0	245.5297	07	115.6055	04	32.8838	01	.164059	03	.073849	01	11.474388	01
37458.0	256.1336	08	108.5712	05	32.8844	02	.164047	04	.022629	01	11.474392	01
37460.0	266.7349	05	101.5373	05	32.8853	02	.164034	04	.971420	01	11.474395	00
37462.0	277.3352	07	94.5042	05	32.8854	01	.164029	04	.920213	01	11.474398	00
37464.0	287.9324	05	87.4711	04	32.8856	01	.164037	02	.8669013	01	11.474403	00
37466.0	298.5295	07	80.4385	06	32.8851	01	.164072	04	.817818	01	11.474406	01
37468.0	309.1222	08	73.4075	06	32.8846	01	.164099	04	.766636	01	11.474413	01
37470.0	319.7161	15	66.3747	11	32.8842	03	.164139	07	.715467	03	11.474427	01
37472.0	330.3056	15	59.3421	10	32.8835	03	.164191	07	.664333	03	11.474444	01
37474.0	340.8940	58	52.3086	24	32.8825	04	.164245	17	.613234	10	11.474455	04
37476.0	351.4891	32	45.2737	16	32.8817	05	.164320	10	.562151	06	11.474469	02
37478.0												

T (MJD)	ω	Ω	1	e	M	n	$n^{*}/2$	q	N	D	σ	
37482.0	23.168	22.4	24.1698	06	32.8812	20	.164498	34	*409286	85	.95E-6	47
37484.0	33.786	32.5	17.1341	12	32.8767	05	.164610	21	*35812	12	11.474564	52
37486.0	44.3184	21	10.1013	05	32.8755	03	.164704	07	*307270	06	.172E-5	25
37488.0	54.8706	13	3.0674	05	32.8747	03	.164760	04	*256372	03	.312E-5	21
37490.0	65.4223	11	356.0312	04	32.8736	03	.164794	03	*205500	03	.272E-5	12
37492.0	75.9722	15	348.9947	06	32.8728	03	.164815	04	*154656	05	.2902E-5	69
37494.0	86.5133	25	341.9586	11	32.8731	03	.164820	07	*103866	09	11.474618	04
37496.0	97.0610	21	334.9230	08	32.8730	03	.164794	06	*053108	08	11.474638	03
37498.0	107.6027	24	327.8885	11	32.8735	03	.164777	06	*002425	08	11.474673	04
37500.0	118.1509	19	320.8532	07	32.8739	02	.164727	04	*951784	06	.690E-5	17
37502.0	128.7030	18	313.8188	06	32.8748	02	.164668	03	*901188	06	.5736E-5	97
37504.0	139.2601	21	306.7850	06	32.8758	02	.164598	03	*850621	07	.555E-5	11
37506.0	149.8221	17	299.7506	05	32.8766	02	.164520	02	*800087	06	*1183E-5	92
37508.0	160.3871	22	292.7167	06	32.8774	02	.164433	03	*749596	07	11.474767	03
37510.0	170.9578	20	285.6820	05	32.8778	02	.164348	02	*699138	07	*559E-5	13
37512.0	181.5310	18	278.6485	04	32.8787	01	.164257	02	*648699	07	*319E-5	11
37514.0	192.1105	47	271.6143	08	32.8794	03	.164184	04	*598272	17	11.474767	05
37516.0	202.7079	26	264.5814	05	32.8804	02	.164104	02	*547807	09	11.474782	03
37518.0	213.3029	20	257.5481	05	32.8811	02	.164040	02	*497376	07	11.474796	04
37520.0	223.8953	18	250.5139	05	32.8813	02	.163988	03	*446981	07	11.474813	03
37522.0	234.4891	20	243.4796	05	32.8815	02	.163943	03	*396622	07	11.474829	03
37524.0	245.1370	17	236.4467	04	32.8819	01	.163917	02	*346321	06	11.474825	03
37526.0	255.6910	18	229.4125	04	32.8822	01	.163878	03	*295996	07	11.474850	04
37528.0	266.2963	14	222.3788	04	32.8824	01	.163850	02	*245746	05	11.474886	02
37530.0	276.9009	10	215.3452	03	32.8824	01	.163842	02	*195554	04	11.474922	02
37532.0	287.5016	11	208.3115	04	32.8821	02	.163852	02	*145431	04	11.474954	02
37534.0	298.1057	19	201.2771	05	32.8817	02	.163867	03	*095351	07	11.474970	02
37536.0	308.7079	27	194.2432	05	32.8814	02	.163902	03	*045314	09	11.474988	03
37538.0	319.3054	32	187.2094	07	32.8813	03	.163942	04	*995318	11	11.474998	04
37540.0	329.8985	34	180.1754	07	32.8805	03	.163998	04	*945361	11	11.475027	05
37542.0	340.4928	25	173.1419	05	32.8795	01	.164054	02	*895431	08	11.475069	04
											*5484E-5	83
											*6.939596	75

T (MJD)	w	Ω	1	e	M	n	$n'/2$	q	N	D	σ
37544.0	351.0777	17 166.1082 04	32.8784 01	.164131 01	.845576 05	11.475085 02	*4852E-5 74	6.938947 98	8	2.35	
37546.0	1.6606	14 159.0739 03	32.8773 01	.164218 01	.795766 05	11.475107 02	*4986E-5 52	6.938217 121	8	2.35	
37548.0	12.2393	12 152.0397 03	32.8762 01	.164306 01	.746005 04	11.475136 02	*5705E-5 51	6.937474 115	8	2.11	
37550.0	22.8145	13 145.0058 04	32.8752 01	.164391 01	.696299 04	11.475166 02	*6808E-5 64	6.936752 110	8	2.64	
37552.0	33.3810	19 137.9712 05	32.8738 02	.164478 02	.646669 06	11.475202 03	*8093E-5 99	6.936022 114	8	3.82	
37554.0	43.9438	25 130.9361 06	32.8723 03	.164555 02	.597118 09	11.475241 03	*966E-5 12	6.935365 96	8	3.97	
37556.0	54.5048	24 123.9003 06	32.8712 02	.164617 02	.547652 08	11.475297 04	*10336E-4 97	6.934829 101	8	3.91	
37558.0	65.0579	26 116.8634 06	32.8706 02	.164666 03	.498297 09	11.475346 04	*1014E-4 11	6.934400 100	8	3.82	
37560.0	75.6094	27 109.8269 06	32.8703 02	.164710 03	.449028 08	11.475391 04	*886E-5 11	6.934013 78	8	2.94	
37562.0	86.1505	33 102.7899 05	32.8703 02	.164719 04	.399859 10	11.475431 04	*770E-5 13	6.933927 74	8	2.89	
37564.0	96.6886	41 95.7531 06	32.8706 02	.164721 05	.350762 13	11.475465 06	*646E-5 17	6.933894 50	8	2.75	
37566.0	107.2426	38 88.7140 07	32.8700 04	.164700 04	.301670 12	11.475473 05	*641E-5 20	6.934069 35	8	2.85	
37568.0	117.8021	47 81.6746 12	32.8711 04	.164642 06	.252618 15	11.475482 07	*452E-5 43	6.934542 19	8	2.33	
37570.0	128.3533	53 74.6407 14	32.8728 06	.164610 07	.203621 18	11.475510 07	*642E-5 33	6.934799 21	8	2.33	
37572.0	138.9153	38 67.6040 09	32.8749 04	.164531 04	.154647 13	11.475559 05	*973E-5 20	6.935431 37	8	3.46	
37574.0	149.4671	39 60.5678 11	32.8764 03	.164460 05	.105798 14	11.475579 05	*1039E-4 27	6.936020 83	8	4.14	
37576.0	160.0333	22 53.5317 07	32.8777 02	.164371 03	.056988 08	11.475616 03	*1019E-4 13	6.936741 117	8	4.18	
37578.0	170.6021	16 46.4964 05	32.8794 02	.164286 03	.008251 05	11.475643 02	*1071E-4 97	6.937438 138	8	4.22	
37580.0	181.1793	12 39.4621 04	32.8814 04	.164204 02	.959573 04	11.475678 02	*11183E-4 74	6.938102 169	6	3.88	
37582.0	191.7630	10 32.4279 04	32.8830 01	.164128 02	.910967 03	11.475713 02	*11498E-4 65	6.938721 157	8	3.35	
37584.0	202.3528	08 25.3940 03	32.8844 01	.164057 02	.862435 03	11.475750 02	*12686E-4 61	6.939291 133	8	2.38	
37586.0	212.9485	08 18.3603 03	32.8855 01	.163996 02	.813986 02	11.475797 01	*12239E-4 46	6.939780 131	8	2.57	
37588.0	223.5452	11 11.3264 05	32.8863 01	.163938 03	.765635 03	11.475838 02	*10153E-4 88	6.940249 97	8	3.11	
37590.0	234.1447	06 4.2926 03	32.8869 01	.163886 02	.717351 02	11.475876 01	*84.7E-5 41	6.940661 77	8	1.80	
37592.0	244.7417	10 357.2581 04	32.8876 01	.163859 03	.669144 03	11.475911 01	*8510E-5 59	6.940874 80	8	2.11	
37594.0	255.3442	16 350.2235 07	32.8883 02	.163853 04	.620986 05	11.475949 02	*879E-5 12	6.940905 66	8	2.58	
37596.0	265.9368	23 343.1882 07	32.8883 02	.163843 07	.572932 08	11.475987 03	*7882E-5 99	6.940974 60	8	2.01	
37598.0	276.5524	22 336.1546 11	32.8883 03	.163873 08	.524857 09	11.475994 03	*800E-5 17	6.940719 48	8	2.45	
37600.0	287.153	10 329.1217 24	32.8876 09	.163894 17	.476898 41	11.475998 38	*980E-5 35	6.940462 28	8	1.89	
37602.0	297.7618	39 322.0898 28	32.8859 12	.163910 15	.428990 15	11.476088 06	*1118E-4 32	6.940378 24	8	3.37	

T (MJD)	ω	Ω	Ω	i	e	M	d	$n'/2$	q	N	D	c
37604.0	308.3703	30	315.0514	13	32.8871	07	.163947	11	.381205	10	11.476127	03
37606.0	318.9675	25	308.0167	08	32.8862	04	.163978	08	.333504	06	11.476167	03
37608.0	329.5627	14	300.9809	04	32.8857	04	.164061	05	.285870	04	11.476205	02
37610.0	340.1534	13	293.9453	05	32.9453	05	.164143	05	.238319	04	11.476252	02
37612.0	350.7407	11	286.9101	06	32.8826	04	.164243	04	.190863	03	11.476294	01
37614.0	1.3246	13	279.8748	08	32.8813	04	.164328	06	.143504	03	11.476341	02
37616.0	11.9055	11	272.8378	08	32.8788	03	.164417	05	.096237	03	11.476392	01
37618.0	22.4800	14	265.7999	11	32.8766	03	.164491	06	.049069	03	11.476434	01
37620.0	33.0459	13	258.7621	11	32.8751	02	.164578	06	.001990	03	11.476475	01
37622.0	43.6068	14	251.7250	13	32.8741	02	.164675	07	.954977	03	11.476513	01
37624.0	54.1614	12	244.6878	12	32.8733	02	.164745	06	.908036	02	11.476542	01
37626.0	64.7157	10	237.6464	10	32.8714	02	.164806	06	.861151	02	11.476572	01
37628.0	75.2624	11	230.6077	12	32.8698	02	.164805	08	.814327	02	11.476600	01
37630.0	85.8062	09	223.5716	08	32.8697	02	.164839	05	.767551	02	11.476623	01
37632.0	96.3535	08	216.5333	06	32.8695	02	.164855	06	.720812	01	11.476639	01
37634.0	106.9002	09	209.4956	07	32.8698	02	.164847	08	.674110	02	11.476663	01
37636.0	117.4500	10	202.4579	06	32.8702	02	.164823	08	.627461	02	11.476691	01
37638.0	128.3063	10	195.4181	06	32.8707	02	.164746	07	.580877	02	11.476722	01
37640.0	138.5564	10	188.3794	06	32.8710	02	.164676	07	.534384	02	11.476750	01
37642.0	149.1193	10	181.3395	06	32.8719	02	.164584	05	.487899	02	11.476763	02
37644.0	159.6905	08	174.3005	05	32.8736	01	.164503	04	.441425	02	11.476768	01
37646.0	170.2671	09	167.2612	05	32.8752	01	.164414	04	.394974	02	11.476772	01
37648.0	180.8512	07	160.2237	04	32.8766	01	.164324	03	.348527	02	11.476779	01
37650.0	191.4396	06	153.1852	04	32.8779	01	.164246	03	.302096	02	11.476790	01
37652.0	202.0320	07	146.1468	04	32.8792	01	.164169	03	.255687	02	11.476802	01
37654.0	212.6284	08	139.1093	06	32.8807	01	.164102	04	.209296	02	11.476813	01
37656.0	223.2245	09	132.0721	07	32.8823	02	.164047	04	.162934	02	11.476825	01
37658.0	233.8265	07	125.0342	05	32.8839	01	.163999	03	.116603	02	11.476843	01
37660.0	244.4304	05	117.9985	04	32.8847	01	.163978	03	.070312	01	11.476870	00
37662.0	255.0351	04	110.9628	04	32.8854	01	.163963	03	.024080	01	11.476897	00
37664.0	265.6409	05	103.9262	04	32.8857	01	.163949	03	.977909	01	11.476929	00

SAO MEAN ELEMENTS

Satellite 1959 Alpha 2

6 April - 30 May 1960

T (MJD)	i	w	Ω	η	l	e	M	n	n ^{1/2}	q	W	D	σ
37030.0	17.092 18	263.9203 21	32.9166 06	•183741 71	•645680 82	11.088916 11	•645E-5 22	6.932620	23	8	2.30		
37032.0	26.984 14	257.3373 13	32.9151 03	•183745 63	•823450 63	11.088941 06	•657E-5 11	6.932578	24	8	2.05		
37034.0	36.858 13	250.7541 13	32.9140 03	•183757 42	•001332 55	11.088945 08	•572E-5 18	6.932472	18	8	1.53		
37036.0	46.735 11	244.1720 07	32.9132 02	•183784 35	•179240 46	11.089011 06	•8313E-5 92	6.932217	17	8	1.01		
37038.0	56.5836 35	237.5871 12	32.9124 02	•183918 18	•357344 17	11.089021 05	•1011E-4 22	6.931075	18	8	2.18		
37040.0	66.420 15	231.0113 67	32.9108 06	•183893 40	•535494 59	11.089009 42	•165E-4 16	6.931292	10	8	3.77		
37042.0	76.3151 09	224.4238 07	32.9107 02	•183915 05	•713601 01	11.089125 01	•1268E-4 14	6.931051	13	8	1.54		
37044.0	86.1745 11	217.8401 09	32.9102 03	•183929 07	•891921 02	11.089171 01	•936E-5 33	6.930921	21	8	2.68		
37046.0	96.0348 18	211.2566 19	32.9108 05	•183915 10	•070307 03	11.089221 05	•1019E-4 59	6.931012	16	8	3.08		
37048.0	105.8976 15	204.6705 14	32.9119 04	•183887 08	•248778 03	11.089261 02	•1154E-4 44	6.931236	17	8	3.07		
37050.0	115.7553 24	198.0940 09	32.9104 03	•183783 06	•427347 07	11.089354 08	•933E-5 21	6.932079	16	8	1.71		
37052.0	125.6365 95	191.5113 39	32.9102 17	•183756 16	•605997 49	11.089362 07	•105E-4 20	6.932573	9	8	4.37		
37054.0	135.4609 56	184.9293 13	32.9109 03	•183703 07	•784802 17	11.089371 08	•1375E-4 67	6.932751	14	8	3.13		
37056.0	145.3510 29	178.3455 12	32.9122 03	•183629 08	•963586 08	11.089397 04	•872E-5 40	6.933367	18	8	4.05		
37058.0	155.2399 21	171.7619 16	32.9136 03	•183564 10	•142435 05	11.089444 02	•316E-5 34	6.933901	25	8	5.01		
37060.0	165.1258 19	165.1792 12	32.9147 03	•183497 11	•321335 05	11.089460 02	•419E-5 13	6.934466	32	8	5.18		
37062.0	175.0135 12	158.5958 08	32.9148 02	•183325 14	•500243 04	11.089478 01	•743E-5 13	6.935922	32	8	3.14		
37064.0	184.9048 12	152.0145 08	32.9159 02	•183262 11	•679231 04	11.089510 01	•776E-5 10	6.936441	37	8	3.43		
37066.0	194.7965 15	145.4338 09	32.9164 02	•183215 12	•858294 05	11.089544 03	•744E-5 13	6.936825	29	8	3.09		
37068.0	204.6900 08	138.8518 05	32.9176 02	•183159 07	•037421 03	11.089575 01	•6749E-5 96	6.937289	38	8	2.37		
37070.0	214.5914 14	132.2713 08	32.9190 03	•183094 12	•216582 05	11.089595 02	•644E-5 14	6.937829	55	8	4.74		
37072.0	224.4984 18	125.6908 10	32.9200 03	•182997 15	•395776 08	11.089607 04	•532E-5 23	6.938654	63	8	4.93		
37074.0	234.3995 13	119.1075 10	32.9209 03	•183341 11	•575080 06	11.089638 01	•440E-5 16	6.938540	73	8	4.93		
37076.0	244.3083 15	112.5281 10	32.9215 03	•182952 10	•754370 06	11.089662 03	•409E-5 18	6.939008	70	8	4.33		
37078.0	254.2103 22	105.9476 09	32.9219 03	•182921 09	•933726 10	11.089689 04	•436E-5 16	6.939259	66	8	3.84		
37080.0	264.1069 47	99.3672 09	32.9227 03	•182912 12	•113142 20	11.089711 05	•454E-5 15	6.939334	62	8	3.47		
37082.0	274.0252 17	92.7855 06	32.9241 02	•182870 06	•292511 06	11.089725 03	•584E-5 17	6.939684	62	8	3.21		
37084.0	283.9286 08	86.2061 05	32.9244 02	•182868 06	•471981 02	11.089745 02	•640E-5 16	6.939693	48	8	2.66		

T (MJD)	w	Ω	i	e	M	n	n ^{1/2}	q	N	D	σ	
37086.0	293.8300	28	79.6274	10	32.9242	04	*182892	11	.651500	09	11.089767	05
37088.0	303.7644	18	73.0476	03	32.9237	01	*182896	03	.830896	07	11.089708	03
37090.0	313.626	21	66.4625	26	32.9261	16	*182999	15	.010660	77	11.089821	22
37092.0	323.576	13	59.8888	10	32.9209	07	*182982	11	.190265	48	11.089945	14
37094.0	333.4438	35	53.3082	12	32.9200	07	*183055	13	*370204	11	11.089936	05
37096.0	343.3423	21	46.0725	07	32.9199	05	*183097	11	.550103	07	11.089978	02
37098.0	353.2336	21	40.1430	08	32.9190	05	*183158	11	.730092	08	11.090015	01
37100.0	3.1267	23	33.5621	08	32.9182	05	*183214	10	.910140	07	11.090048	01
37102.0	13.0178	26	26.9798	08	32.9174	04	*183268	11	.090264	08	11.090085	01
37104.0	22.9069	31	20.3980	07	32.9158	06	*183339	10	.270462	10	11.090110	05
37106.0	32.7792	20	13.8168	05	32.9146	04	*183427	07	.450777	07	11.090157	01
37108.0	42.6338	28	7.2378	06	32.9154	04	*183544	10	.631205	09	11.089922	03
37110.0	52.6502	21	6544	05	32.9142	03	*183579	08	.811068	07	11.089952	02
37112.0	62.6113	73	354.0727	23	32.9140	09	*183701	25	.991183	24	11.090042	08
37114.0	72.3032	44	347.4876	26	32.9125	08	*183553	21	.172487	19	11.090472	03
37116.0	82.1093	55	340.8978	40	32.9100	11	*183586	21	.353460	19	11.090413	47
37118.0												
37120.0												
37122.0												
37124.0												
37126.0												
37128.0	141.3026	52	301.4027	30	32.9139	04	*183300	07	*440545	18	11.090733	07
37130.0	151.2021	34	294.8227	11	32.9141	03	*183210	05	.622009	12	11.090792	06
37132.0	161.0928	37	288.2414	10	32.9147	04	*183149	05	*803630	13	11.090846	05
37134.0	170.9832	19	281.6598	05	32.9154	02	*183070	03	.985350	07	11.090875	02
37136.0	180.8771	25	275.0796	06	32.9160	02	*182995	02	.167137	09	11.090913	04
37138.0	190.7696	25	268.4983	06	32.9170	03	*182924	03	*349012	08	11.090953	05
37140.0	200.6611	31	261.9166	07	32.9176	03	*182850	03	*530969	11	11.091001	06
37142.0	210.5569	25	255.3326	07	32.9175	03	*182789	03	.712982	09	11.091021	03
37144.0	220.4596	20	248.7481	06	32.9170	02	*182730	03	.895030	07	11.091021	04
37146.0	230.3698	28	242.1665	09	32.9174	03	*182680	05	.077122	10	11.091057	05

$\frac{T}{(MJD)}$	ω	Ω	i	e	M	n	$n^{1/2}$	q	N	D	σ	
37148.0	240.2862	42	235.5836	12	32.9175 03	.182644 06	*259274 15	11.091089 05	*776E-5 20	6.941033	57	8 4.19
37150.0	250.2045	56	229.0012	12	32.9176 02	.182611 09	*441485 20	11.091128 05	*830E-5 20	6.941293	54	8 3.78
37152.0	260.1045	75	222.4214	16	32.9175 03	.182638 09	*623832 26	11.091144 13	*623E-5 26	6.941060	42	8 3.69
37154.0	269.9911	50	215.8417	08	32.9171 02	.182609 05	*806276 18	11.091250 07	*766E-5 21	6.941265	29	8 1.93
37156.0												
37158.0												
37160.0												
37162.0												
37164.0												
37166.0	329.4813	69	176.3507	14	32.9158 03	.182784 35	*902887 33	11.091737 08	*3550E-4 13	6.939572	35	8 3.23
37168.0	339.420	17	169.7774	34	32.9151 07	.182805 89	*086373 84	11.091805 13	*3180E-4 29	6.939367	29	8 5.80
37170.0	349.263	16	163.1681	38	32.9168 10	.18306 10	*270479 84	11.091949 12	*2414E-4 33	6.937153	22	8 4.85
37172.0	359.1745	83	156.6036	28	32.9135 10	.182851 45	*454526 35	11.092070 07	*1856E-4 14	6.938864	27	8 1.72

SAO MEAN ELEMENTS

Satellite 1959 Eta

1 January - 28 February 1960

T (MJD)	ω	Ω	i	e	M	n	$n^{1/2}$	q	N	D	σ
36934.0	284.0271	08 250.1782	06	33.3596	03	.189601	05	.034717	02	11.063816	02
36936.0	293.8008	12 243.6222	07	33.3593	03	.189649	10	.162407	02	11.063878	01
36938.0	303.5693	22 237.0830	08	33.3592	03	.189618	12	.290225	02	11.063949	01
36940.0	313.3304	26 230.5367	10	32.3585	03	.189639	14	.418206	05	11.064022	02
36942.0	323.0926	19 223.9909	08	32.3570	02	.189671	10	.546334	03	11.064097	01
36944.0	332.8539	14 217.4416	06	32.3551	02	.189730	10	.674607	05	11.064170	02
36946.0	342.6084	11 210.8945	04	32.3539	02	.189781	06	.803012	02	11.064238	01
36948.0	352.3619	20 204.3461	06	32.3524	02	.189864	10	.931552	03	11.064299	02
36950.0	2.1139	20 197.7979	09	32.3511	02	.189984	09	.060218	04	11.064361	03
36952.0	11.8599	27 191.2512	14	33.3499	02	.190100	41	.189004	18	11.064425	07
36954.0	21.6029	40 184.7027	17	33.3487	03	.190229	65	.317924	29	11.064492	11
36956.0	31.3478	41 178.1543	13	33.3476	02	.190214	62	.446924	30	11.064530	12
36958.0	41.0866	18 171.6047	09	33.3468	02	.190272	25	.576108	12	11.064624	05
36960.0	50.8264	09 165.0539	06	32.3465	02	.190304	12	.705425	05	11.064709	08
36962.0	60.5494	07 158.5057	04	33.3458	01	.190351	04	.834931	01	11.064795	01
36964.0	70.2651	14 151.9567	09	32.3454	03	.190375	07	.964598	03	11.064875	01
36966.0	79.9862	17 145.4074	10	33.3450	03	.190404	07	.094402	03	11.064946	02
36968.0	89.7095	14 138.8558	10	32.3452	03	.190420	08	.224399	02	11.065048	01
36970.0	99.4372	13 132.3052	09	32.3456	03	.190416	10	.354593	03	11.065150	01
36972.0	109.1637	60 125.7534	21	32.3453	06	.190484	41	.485013	20	11.065267	40
36974.0	118.8893	20 119.2075	12	32.3467	03	.190315	08	.615555	06	11.065311	02
36976.0	128.6155	27 112.6566	19	32.3485	08	.190256	14	.746246	03	11.065368	02
36978.0	138.3570	07 106.1062	09	32.3495	04	.190211	07	.877026	01	11.065420	01
36980.0	148.0911	05 99.5559	03	32.3510	01	.190136	05	.007902	01	11.065454	00
36982.0	157.8285	05 93.0065	03	32.3522	02	.190044	07	.138836	01	11.065482	00
36984.0	167.5716	06 86.4573	04	32.3538	02	.189952	06	.269824	01	11.065510	01
36986.0	177.3194	07 79.9089	04	32.3548	03	.189885	06	.400873	02	11.065539	01
36988.0	187.0727	08 73.3604	05	32.3563	04	.189788	08	.531985	02	11.065580	01
36990.0	196.8260	07 66.8118	05	32.3581	03	.189688	09	.663189	02	11.065624	01
36992.0	206.5828	10 60.2630	06	32.3593	03	.189617	10	.794491	03	11.065680	02

(MJD)	ω	Ω	1	e	M	n	$n^2/2$	q	N	D	σ
36994.0	216.3407	17	53.7153	09	33.3608	03	189549	10	.925901	06	*1503E-4 17
36996.0	226.128	19	47.1684	15	33.3620	04	189485	29	.057324	79	11.065760
36998.0	235.8666	42	40.6226	16	33.3629	05	189469	17	.189053	15	11.065830
37000.0	245.6374	17	34.0754	12	33.3635	04	189418	10	.320758	04	11.065882
37002.0	255.4074	11	27.5278	06	33.3638	03	189372	06	.452567	02	11.065927
37004.0	265.1795	10	20.9795	07	33.3640	03	189345	06	.584478	03	11.065982
37006.0	274.9464	14	14.4311	09	33.3643	03	189342	13	.716513	05	11.066041
37008.0	284.7234	15	7.8868	10	33.3642	02	189320	14	.848597	08	11.066118
37010.0	294.4812	11	1.3353	06	33.3638	02	189354	08	.980897	04	11.066172
37012.0	304.2406	11	354.7878	06	33.3631	02	189428	08	.113315	04	11.066238
37014.0	314.0100	09	348.2404	06	33.3626	02	189430	05	.245819	03	11.066286
37016.0	323.7800	14	341.6931	09	33.3621	02	189450	08	.378438	04	11.066350
37018.0	333.5448	12	335.1453	07	33.3607	02	189493	06	.511214	03	11.066422
37020.0	343.3130	13	328.5971	07	33.3594	02	189525	06	.644137	03	11.066510
37022.0	353.0721	15	322.0489	07	33.3579	02	189570	06	.7777250	04	11.066600
37024.0	2.8176	36	315.4995	15	33.3560	05	189645	18	.910616	12	11.066739
37026.0	12.5627	36	308.9515	11	33.3533	05	189738	16	.044245	12	11.066877
37028.0	22.3245	22	302.4005	06	33.3517	03	189664	11	.178087	08	11.067004
37030.0	32.0515	20	295.8504	05	33.3504	02	189913	11	.312223	08	11.067092
37032.0	41.7991	23	289.2991	08	33.3491	03	189954	09	.4464449	08	11.067173
37034.0	51.5354	22	282.7473	08	33.3468	04	190003	08	.580885	06	11.067250
37036.0	61.2682	19	276.1944	08	33.3460	02	190029	06	.715516	05	11.067363
37038.0	70.9989	24	269.6416	09	33.3455	02	190051	06	.850335	08	11.067458
37040.0	80.776	25	263.0881	24	33.3450	05	190072	24	.985154	98	11.067554
37042.0	90.472	21	256.5345	22	33.3445	04	190041	22	.120497	83	11.067658
37044.0	100.186	18	249.9886	27	33.3450	03	190052	31	.255953	72	11.067765
37046.0	109.9048	39	243.4346	24	33.3455	04	190013	12	.391634	14	11.067871
37048.0	119.6367	38	236.8848	20	33.3463	03	189960	10	.527471	13	11.067968
37050.0	129.4496	27	230.3326	15	33.3471	03	189873	07	.663510	09	11.068064
37052.0	139.1065	31	223.7804	13	33.3485	03	189785	08	.799783	11	11.068190
37054.0	148.8507	41	217.2293	14	33.3494	04	189704	07	.936246	15	11.068292

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T (MJD)	ω	Ω	i	e	M	n	$n^{1/2}$	q	N	D	σ	
37056.0	158.5814	90	210.6752	1.8	33.3514	0.6	1.89566	1.4	.073030	33	11.068357	15
37058.0	168.3408	18	204.1244	0.5	33.3527	0.2	1.89523	0.3	.209835	0.6	11.068451	0.4
37060.0	178.1040	24	197.5752	0.6	33.3533	0.2	1.89446	0.2	.346765	0.8	11.068500	0.4
37062.0	187.8672	20	191.0249	0.7	33.3536	0.2	1.89421	0.2	.483845	0.7	11.068576	0.2
37064.0	197.6395	18	184.4746	0.6	33.3541	0.2	1.89296	0.2	.621056	0.6	11.068648	0.3
37066.0	207.4114	17	177.9241	0.7	33.3542	0.2	1.89236	0.3	.758459	0.5	11.068744	0.3
37068.0	217.1818	17	171.3734	0.8	33.3551	0.2	1.89185	0.4	.896053	0.6	11.068838	0.2
37070.0	226.9442	12	164.8218	0.5	33.3559	0.2	1.89147	0.2	.033857	0.4	11.068932	0.2
37072.0	236.7802	12	158.2710	0.4	33.3567	0.1	1.89111	0.2	.171776	0.4	11.068992	0.3
37074.0	246.4956	18	151.7196	0.5	33.3570	0.2	1.89070	0.3	.309785	0.7	11.069038	0.3
37076.0	256.2706	16	145.1683	0.5	33.3572	0.2	1.89051	0.3	.447933	0.6	11.069090	0.2
37078.0	266.0478	15	138.6168	0.5	33.3574	0.2	1.89037	0.3	.586172	0.5	11.069152	0.3
37080.0	275.8216	12	132.0659	0.4	33.3575	0.2	1.89034	0.2	.724530	0.4	11.069210	0.2
37082.0	285.5945	13	125.5156	0.4	33.3577	0.2	1.89030	0.3	.862999	0.5	11.069269	0.2
37084.0	295.3661	10	118.9642	0.4	33.3581	0.2	1.89040	0.3	.001597	0.4	11.069333	0.1
37086.0	305.1364	01	112.4139	0.4	33.3577	0.2	1.89059	0.2	.140328	0.3	11.069398	0.2
37088.0	314.9121	16	105.8622	0.5	33.3573	0.2	1.89078	0.3	.279180	0.5	11.069461	0.3
37090.0	324.6795	24	99.3104	0.7	33.3571	0.2	1.89137	0.4	.418193	0.7	11.069543	0.3
37092.0	334.4505	23	92.7580	0.5	33.3566	0.2	1.89183	0.3	.557374	0.7	11.069641	0.4
37094.0	344.2157	25	86.2074	0.5	33.3563	0.2	1.89243	0.3	.696755	0.8	11.069748	0.4
37096.0	353.9808	32	79.6563	0.5	33.3557	0.2	1.89304	0.4	.836337	1.1	11.069843	0.5
37098.0	3.7396	17	73.1044	0.3	33.3550	0.1	1.89357	0.2	.976133	0.5	11.069956	0.2
37100.0	13.4916	27	66.5524	0.5	33.3540	0.2	1.89424	0.3	.116148	0.8	11.070063	0.4
37102.0	23.2375	33	59.9995	0.8	33.3526	0.3	1.89495	0.3	.256371	1.0	11.070174	0.4
37104.0	32.9898	30	53.4485	0.7	33.3514	0.3	1.89557	0.3	.396743	0.9	11.070225	0.3
37106.0	42.7310	42	46.8952	1.1	33.3502	0.4	1.89645	0.4	.537306	1.3	11.070311	0.6
37108.0	52.4816	42	40.3409	0.9	33.3496	0.3	1.89712	0.3	.677976	1.3	11.070372	0.5
37110.0	62.2224	64	33.7871	0.6	33.3488	0.6	1.89770	0.6	.818800	1.9	11.070455	0.7
37112.0	71.9676	48	27.2315	14	33.3485	0.7	1.89788	0.5	.959765	1.4	11.070536	0.8
37114.0	81.6834	44	20.6792	11	33.3474	0.6	1.89782	0.5	.100995	1.3	11.070659	0.7

T (MJD)	w	Ω	i	e	M	n	n ^{1/2}	q	N	D	σ
37116.0	91.4177 44	14.1245 09	33.3479 06	.189778 04	.242393 14	11.070771 05	.2908E-4 28	6.888883	29	8	4.25
37118.0	101.1457 57	7.5706 09	33.3480 06	.189756 04	.384047 17	11.070778 14	.3037E-4 69	6.889028	21	8	3.73
37120.0	110.8782 52	1.0153 10	33.3482 05	.189725 04	.525941 15	11.071004 05	.3133E-4 26	6.889242	22	8	3.62
37122.0	120.6154 47	354.4589 13	33.3487 06	.189686 05	.668082 14	11.071224 05	.2894E-4 20	6.889519	22	8	4.26
37124.0	130.3675 35	347.9024 08	33.3481 03	.189640 03	.810405 10	11.071215 03	.2647E-4 16	6.889871	21	8	1.95
37126.0	140.1046 35	341.3477 11	33.3497 03	.189563 04	.952995 11	11.071321 03	.2568E-4 12	6.890485	29	8	3.05
37128.0	149.8556 59	334.7914 17	33.3504 04	.189493 06	.957477 20	11.071415 05	.2663E-4 17	6.891044	32	8	4.29
37130.0	159.6096 59	328.2414 23	33.3522 04	.189423 09	.238683 20	11.071541 07	.2917E-4 21	6.891587	38	8	6.00
37132.0	169.3612 28	321.6885 17	33.3537 03	.189327 05	.381874 08	11.071651 03	.3070E-4 15	6.892357	43	8	4.13
37134.0	179.1218 21	315.1346 11	33.3550 02	.189257 04	.525280 06	11.071763 02	.3013E-4 18	6.892901	53	8	4.14
37136.0	188.8789 13	308.5814 07	33.3567 02	.189178 03	.668945 04	11.071878 01	.29748E-4 89	6.893527	67	8	3.23
37138.0	198.6552 17	302.0291 06	33.3577 02	.189120 04	.812787 05	11.072009 02	.2690E-4 15	6.893965	68	8	4.07
37140.0	208.4220 19	295.4756 07	33.3588 02	.189052 05	.956883 06	11.072101 02	.2471E-4 15	6.894504	66	8	4.61
37142.0	218.1972 19	288.9223 07	33.3591 03	.189010 06	.101151 06	11.072179 02	.2073E-4 19	6.894830	45	6	3.94
37144.0	227.9761 15	282.3675 07	33.3594 03	.188972 05	.245576 05	11.072255 02	.2013E-4 18	6.895119	52	6	4.08
37146.0	237.7607 18	275.8133 09	33.3595 04	.188946 07	.390148 06	11.072340 02	.1947E-4 31	6.895309	60	6	5.99
37148.0	247.5369 12	269.2592 08	33.3595 03	.188899 05	.534909 04	11.072412 02	.1545E-4 35	6.895677	67	6	4.90
37150.0	257.3094 21	262.7040 12	33.3593 03	.188871 06	.679810 08	11.072486 04	.1707E-4 43	6.895884	55	6	4.35
37152.0	267.0889 29	256.1471 11	33.3586 03	.188862 08	.824821 10	11.072538 04	.1519E-4 35	6.895940	45	6	4.44
37154.0	276.8809 42	249.5880 09	33.3573 04	.188896 11	.969906 15	11.072591 06	.1718E-4 41	6.895631	53	6	4.11
37156.0	286.6625 31	243.0317 08	33.3570 03	.188914 10	.115159 11	11.072670 04	.2064E-4 24	6.895447	56	6	3.40
37158.0	296.4390 31	236.4794 10	33.3572 03	.188922 09	.260587 11	11.072772 03	.2676E-4 30	6.895330	62	6	4.27
37160.0	306.2194 24	229.9248 09	33.3567 02	.188961 07	.406218 08	11.072889 03	.3450E-4 24	6.894949	50	6	3.29
37162.0	315.9974 29	223.3702 12	33.3560 04	.188987 10	.552138 10	11.073036 05	.4932E-4 39	6.894667	62	6	6.33
37164.0	325.7707 13	216.8148 06	33.3552 02	.189015 05	.698469 04	11.073267 02	.5464E-4 18	6.894339	84	6	3.76
37166.0	335.5455 11	210.2584 04	33.3545 02	.189073 04	.845230 04	11.073490 02	.5324E-4 21	6.893751	72	6	2.85
37168.0	345.3221 17	203.7020 06	33.3538 02	.189109 04	.992405 06	11.073672 03	.4849E-4 18	6.893372	60	6	3.02
37170.0	355.0971 22	197.1450 08	33.3536 03	.189216 04	.139975 08	11.073851 03	.3558E-4 26	6.892389	54	6	4.24
37172.0	4.8679 16	190.5877 06	33.3522 02	.189289 03	.287832 05	11.073995 02	.2859E-4 20	6.891706	48	6	3.08
37174.0	14.6333 14	184.0300 06	33.3502 02	.189366 03	.435936 04	11.074109 01	.2769E-4 12	6.891002	56	8	3.22
37176.0	24.3918 16	177.4724 08	33.3488 02	.189444 05	.584279 05	11.074229 02	.2671E-4 16	6.890286	47	8	3.63

T (MJD)	ω	Q	i	M	n	n'/2	q	N	D	σ	
37178.0	34.1436	14.170.9137	.07	33.3476	.02	*189508	.05	*732854	.05	11.074338	.01
37180.0	53.6332	12.157.7963	.07	33.3464	.03	*189664	.05	*030654	.04	11.074580	.01
37182.0	63.3750	13.151.2369	.08	33.3453	.03	*189711	.06	*179949	.04	11.074715	.00
37184.0	73.1250	08.144.6779	.05	33.3443	.02	*189730	.04	*329477	.02	11.074869	.00
37186.0	82.8452	15.138.1166	.08	33.3441	.03	*189768	.08	*479399	.05	11.075053	.01
37188.0	92.6088	13.131.5563	.07	33.3441	.03	*189758	.08	*629665	.05	11.075258	.01
37190.0	102.3387	10.124.9944	.08	33.3442	.03	*189733	.07	*780415	.04	11.075468	.01
37192.0	112.0806	09.118.4329	.01	33.3445	.04	*189692	.08	*931611	.04	11.075713	.01
37194.0	121.8234	10.111.8744	.12	33.3451	.04	*189670	.08	*083277	.04	11.075958	.01
37196.0	131.5644	26.105.3112	.20	33.3452	.07	*189610	.12	*235460	.08	11.076219	.06
37198.0	141.3086	37.98.7494	.16	33.3458	.06	*189557	.09	*388126	.09	11.076456	.04
37200.0	151.1092	47.92.1911	.23	33.3506	.06	*189458	.14	*541149	.15	11.076680	.04
37202.0	160.8443	20.85.6216	.01	33.3521	.03	*189369	.07	*694763	.07	11.076870	.04
37204.0	170.6082	91.79.0599	.05	33.3532	.03	*189297	.06	*848667	.03	11.077032	.02
37206.0	180.3757	14.72.4976	.07	33.3546	.03	*189218	.06	*002894	.04	11.077190	.02
37208.0	190.1465	17.65.0344	.13	33.3557	.05	*189129	.09	*157442	.04	11.077344	.01
37210.0	200.9271	43.59.3717	.41	33.3578	.12	*189053	.16	*312267	.07	11.077488	.02
37212.0	209.7102	24.52.8080	.24	33.3597	.05	*188986	.07	*467389	.03	11.077660	.10
37214.0	219.5009	17.46.2511	.13	33.3622	.03	*188941	.11	*622844	.04	11.077813	.01
37216.0	229.2858	15.39.6893	.01	33.3629	.02	*188898	.08	*778612	.04	11.077956	.01
37218.0	239.0755	12.33.1272	.09	33.3637	.02	*188861	.08	*944663	.03	11.078098	.01
37220.0	248.8622	08.26.5663	.06	33.3643	.02	*188810	.06	*091027	.02	11.078258	.01
37222.0	258.6470	07.20.0060	.06	33.3647	.02	*188802	.05	*247708	.02	11.078420	.01
37224.0	268.4374	10.13.4452	.08	33.3649	.02	*188784	.05	*404686	.02	11.078568	.02
37226.0	278.2395	25.6.8856	.16	33.3650	.03	*188829	.09	*561886	.08	11.078667	.03
37228.0	288.0899	28.3223	.06	33.3645	.01	*188832	.06	*719466	.12	11.078789	.03
37230.0	297.7927	49.353.7594	.06	33.3641	.01	*188843	.08	*877187	.20	11.078889	.04
37232.0	307.5818	38.347.1972	.10	33.3636	.02	*188879	.17	*035083	.37	11.078989	.07
37234.0	317.3822	83.340.6347	.11	33.3627	.03	*188936	.20	*193129	.36	11.079078	.06
37236.0	327.1866	79.334.0721	.14	33.3618	.04	*189036	.21	*351323	.35	11.079175	.05
37238.0											

T (MTD)	w	n	1	e	M	n	n'2	q	N	D	σ
37240.0	336.959	10	327.5092	15	33.3603	05	•189078	30	•509824	44	11.079285
37242.0	346.722	16	320.9448	18	33.3593	09	•189116	53	•668561	68	11.079393
37244.0	356.4968	43	314.3814	15	33.3577	10	•189179	13	•827461	19	11.079502
37246.0	6.2734	29	307.8175	14	33.3565	12	•189262	12	•986591	09	11.079624
37248.0	16.0489	15	301.2525	07	33.3546	09	•189331	06	•145960	03	11.079753
37250.0	25.8202	13	294.6871	07	33.3537	07	•189395	05	•305592	03	11.079881
37252.0	35.5814	16	288.1207	11	33.3526	10	•189464	06	•465540	03	11.080067
37254.0	55.0983	13	274.9844	11	33.3477	04	•189575	04	•786460	02	11.080337
37256.0	64.8473	11	268.4170	10	33.3471	04	•189610	04	•947210	02	11.080413
37258.0	74.5983	14	261.8482	10	33.3458	03	•189636	04	•108109	02	11.080484
37260.0	84.3395	08	255.2817	05	33.3456	01	•189650	02	•269181	01	11.080550
37262.0	94.0907	26	248.7154	14	33.3461	04	•189647	07	•430335	04	11.080611
37264.0	103.8412	35	242.1476	14	33.3460	04	•189623	09	•591596	05	11.080654
37266.0	113.5963	36	235.5798	15	33.3457	04	•189564	08	•752933	06	11.080699
37268.0	123.3488	44	229.0147	20	33.3466	04	•189534	09	•914372	08	11.080740
37270.0	133.1017	42	222.4600	16	33.3472	04	•189467	08	•075925	07	11.080817
37272.0	142.8501	45	215.8871	24	33.3480	04	•189410	08	•237621	07	11.080884
37274.0	152.6244	39	209.3157	17	33.3474	04	•189317	07	•299405	06	11.080936
37276.0	162.3889	32	202.7502	14	33.3482	03	•189242	06	•561343	05	11.080996
37278.0	172.1587	25	196.1845	11	33.3494	02	•189169	06	•723398	04	11.081059
37280.0	181.9358	22	189.6168	12	33.3502	03	•189103	08	•885565	04	11.081119
37282.0	191.7277	20	183.0463	12	33.3519	03	•188939	07	•047871	04	11.081173
37284.0	201.5132	21	176.4799	12	33.3529	03	•188891	07	•210295	04	11.081246
37286.0	211.3022	15	169.9124	07	33.3545	03	•188844	05	•372837	03	11.081296
37288.0	221.0923	13	163.3449	07	33.3556	03	•188778	05	•535479	02	11.081341
37290.0	230.8858	23	156.7799	11	33.3570	03	•188752	06	•698185	04	11.081367
37292.0	240.6867	21	150.2133	12	33.3575	03	•188734	07	•860949	03	11.081398
37294.0	250.4775	21	143.6455	09	33.3578	03	•188758	08	•023807	04	11.081436
37296.0	260.2706	32	137.0803	16	33.3588	05	•188708	12	•186761	09	11.081505
37298.0	55.0983	13	274.9844	11	33.3477	04	•189575	04	•1904E-4	15	6.886639
37256.0	64.8473	11	268.4170	10	33.3471	04	•189610	04	•18803E-4	84	6.886316
37260.0	74.5983	14	261.8482	10	33.3458	03	•189636	04	•1762E-4	65	6.886070
37262.0	84.3395	08	255.2817	05	33.3456	01	•189650	02	•14030E-4	78	6.885914
37264.0	94.0907	26	248.7154	14	33.3461	04	•189647	07	•1174E-4	14	6.885916
37266.0	103.8412	35	242.1476	14	33.3460	04	•189623	09	•1089E-4	17	6.886060
37268.0	113.5963	36	235.5798	15	33.3457	04	•189564	08	•1303E-4	30	6.886590
37270.0	123.3488	44	229.0147	20	33.3466	04	•189534	09	•1375E-4	32	6.886828
37272.0	133.1017	42	222.4600	16	33.3472	04	•189467	08	•1673E-4	31	6.887363
37274.0	142.8501	45	215.8871	24	33.3480	04	•189410	08	•1702E-4	22	6.887816
37276.0	152.6244	39	209.3157	17	33.3474	04	•189317	07	•1774E-4	18	6.888589
37278.0	162.3889	32	202.7502	14	33.3482	03	•189242	06	•1665E-4	21	6.888920
37280.0	172.1587	25	196.1845	11	33.3494	02	•189169	06	•1622E-4	13	6.889791
37282.0	181.9358	22	189.6168	12	33.3502	03	•189103	08	•1757E-4	17	6.890329
37284.0	191.7277	20	183.0463	12	33.3519	03	•188939	07	•1761E-4	16	6.891705
37286.0	201.5132	21	176.4799	12	33.3529	03	•188891	07	•1566E-4	18	6.892079
37288.0	211.3022	15	169.9124	07	33.3545	03	•188844	05	•1229E-4	15	6.892456
37290.0	221.0923	13	163.3449	07	33.3556	03	•188778	05	•1127E-4	18	6.893003
37292.0	230.8858	23	156.7799	11	33.3570	03	•188752	06	•9092E-5	88	6.893213
37294.0	240.6867	21	150.2133	12	33.3575	03	•188734	07	•902E-5	20	6.893354
37296.0	250.4775	21	143.6455	09	33.3578	03	•188758	08	•982E-5	22	6.893135
37298.0	260.2706	32	137.0803	16	33.3588	05	•188708	12	•1271E-4	40	6.893527

Satellite 1959 Eta

1 January - 28 February 1960

T (MJD)	ω	Ω	i	M	n/2	q	N	D	σ		
37300.0											
37302.0	289.6604	27	117.3823	12	33.3606	02	.188687	13	.676192	04	
37304.0	299.4516	27	110.8155	11	33.3605	02	.188711	11	.839553	05	
37306.0	309.2389	41	104.2521	24	33.3601	04	.188797	20	.003002	11	
37308.0	319.020	12	97.6880	28	33.3597	04	.18866	10	.166644	72	
37310.0	328.8171	81	91.1237	16	33.3590	03	.188816	77	.330210	48	
37312.0	338.6078	64	84.5578	19	33.3580	03	.188901	65	.493875	38	
37314.0	348.3952	45	77.9879	19	33.3573	03	.188975	59	.657615	29	
37316.0	358.1690	41	71.4222	24	33.3557	05	.188985	74	.821458	31	
37318.0	37320.0	7.9415	39	64.8537	27	33.3547	08	.189075	65	.985351	26
37322.0	17.7191	42	58.2854	29	33.3540	12	.189191	82	.149296	29	
37324.0	27.4939	40	51.7193	25	33.3526	13	.189227	77	.313325	23	
37326.0	37.2626	73	45.1517	35	33.3513	22	.18926	13	.477438	26	
37328.0	47.0313	43	38.5823	17	33.3513	16	.189314	72	.641606	19	
37330.0	56.7892	34	32.0125	11	33.3526	17	.189435	12	.805839	08	
37332.0	66.5467	43	25.4452	14	33.3512	20	.189460	10	.970146	10	
37334.0	76.2992	48	18.8779	30	33.3509	20	.189491	07	.134519	10	
37336.0	86.0511	49	12.3071	35	33.3491	19	.189502	07	.298967	08	
37338.0	95.7990	37	5.7358	26	33.3485	08	.189518	05	.463495	06	
37340.0	105.5464	39	35.9.1676	21	33.3494	04	.189507	06	.628077	07	
37342.0	115.3010	30	352.5979	16	33.3501	03	.189481	04	.792693	05	
37344.0	125.0617	30	346.0294	15	33.3514	02	.189429	04	.957339	05	
37346.0	134.8243	33	339.4606	13	33.3520	03	.189363	04	.122032	06	
37348.0	144.5795	19	332.8946	06	33.3535	01	.189292	02	.286798	03	
37350.0	154.3335	30	326.3293	09	33.3552	02	.189208	04	.451638	06	
37352.0	164.1213	23	319.7599	07	33.3560	02	.189099	03	.616462	05	
37354.0	173.9029	25	313.1922	07	33.3568	03	.189023	03	.781336	05	
37356.0	183.6901	25	302.6249	07	33.3578	02	.188954	03	.946223	05	
37358.0	193.4789	41	300.0584	10	33.3578	04	.188889	04	.111119	08	

T (MJD)	w	Q	i	e	M	n	$\Delta^1/2$	q	N	D	σ
37360.0	203.2864	77	293.4872	16	33.3588	04	*188791.15	.276006	15	11.082451	05
37362.0											
37364.0											
37366.0											
37368.0											
37370.0											
37372.0											
37374.0											
37376.0	281.6339	37	240.9469	11	33.3589	04	*188567.08	.596322	07	11.082582	03
37378.0	291.4304	31	234.2797	10	33.3586	03	*188586.04	.761510	06	11.082602	03
37380.0											
37382.0											
37384.0											
37386.0											
37388.0	340.3954	34	201.5466	13	33.3558	04	*188769.03	.588193	08	11.082726	04
37390.0	350.1893	26	194.9792	10	33.3547	03	*188836.02	.753679	06	11.082761	03
37392.0	359.9743	23	188.4119	10	33.3533	02	*188911.02	.919233	05	11.082790	02
37394.0	9.7586	30	181.8468	13	33.3518	03	*188984.02	.084839	06	11.082819	03
37396.0	19.5319	40	175.2766	10	33.3508	03	*189066.02	.250524	09	11.082852	04
37398.0	29.2992	29	168.7077	09	33.3495	03	*189145.02	.416252	07	11.082872	02
37400.0	39.0687	23	162.1384	06	33.3480	02	*189217.01	.582002	06	11.082886	02
37402.0	48.8360	23	155.5688	08	33.3468	03	*189295.02	.747784	05	11.082900	03
37404.0	58.5893	29	148.9997	12	33.3456	05	*189353.04	.913628	06	11.082933	03
37406.0	68.3491	31	142.4290	13	33.3448	05	*189397.04	.079502	07	11.082953	03
37408.0	78.1047	41	135.8620	19	33.3433	08	*189415.04	.245422	09	11.082963	04
37410.0	88.8637	44	129.2894	12	33.3445	07	*189414.05	.411369	10	11.082984	04
37412.0	97.6154	44	122.7214	11	33.3445	08	*189413.04	.577352	10	11.083002	07
37414.0	107.3745	32	116.1518	08	33.3455	05	*189404.04	.743345	07	11.082997	03
37416.0	117.1303	50	109.5833	19	33.3457	06	*189370.14	.909358	08	11.083009	04
37418.0	126.813	16	103.0094	23	33.3448	06	*189046.57	.075498	21	11.083037	06

T (MJD)	w	Q	1	e	M	n	n'/2	q	N	D	C
37420.0	136.613 13	96.4434 19	33.3470 05	.189164 41	.241480 18	11.083017 07	.117E-5 15	6.889027	27	8	3.99
37422.0	146.4096 35	89.8756 16	33.3488 05	.189214 05	.407468 07	11.083023 03	.1474E-5 89	6.888595	25	8	3.68
37424.0	156.1818 38	83.3059 17	33.3505 05	.189117 03	.573490 08	11.083031 03	.341E-5 15	6.889420	27	8	4.71
37426.0	165.9452 31	76.7371 09	33.3524 03	.189036 02	.739550 07	11.083032 03	.4053E-5 88	6.890106	36	8	4.86
37428.0	175.7175 20	70.1675 06	33.3539 02	.188945 02	.905625 04	11.083044 02	.3858E-5 78	6.890878	45	8	4.40
37430.0	185.4932 30	63.5983 08	33.3555 02	.188865 02	.071721 07	11.083053 03	.386E-5 10	6.891549	44	8	5.00
37432.0	195.2872 25	57.0329 07	33.3575 02	.188808 02	.237797 05	11.083052 02	.4349E-5 74	6.892032	50	8	5.45
37434.0	205.0809 23	50.4659 07	33.3591 02	.188749 02	.403913 05	11.083063 03	.4095E-5 74	6.892531	42	8	4.31
37436.0	214.8719 34	43.9000 10	33.3607 03	.188691 03	.570064 07	11.083086 04	.405E-5 13	6.893014	30	8	3.75
37438.0	224.6684 22	37.3324 10	33.3619 02	.188630 02	.736236 04	11.083091 01	.3281E-5 59	6.893533	31	8	2.78
37440.0											
37442.0											
37444.0											
37446.0											
37448.0											
37450.0											
37452.0											
37454.0											
37456.0											
37458.0											
37460.0	332.4351 53	325.0935 23	33.3598 10	.18886 12	.565114 52	11.083179 11	-.35E-8 39	6.891549	14	8	3.01
37462.0	342.2165 41	318.5259 14	33.3590 05	.188960 91	.731465 39	11.083146 13	.148E-5 24	6.890705	26	8	2.56
37464.0	352.0068 23	311.5983 12	33.3576 04	.188980 44	.897771 19	11.083171 08	.175E-5 11	6.890522	42	8	2.61
37466.0	1.7890 22	305.2911 15	33.3562 04	*189023 27	.064119 12	11.083191 11	.295E-5 12	6.890147	44	8	2.62
37468.0	11.5727 18	298.8167 12	33.3538 03	.189127 20	.230521 09	11.083206 03	.367E-5 13	6.889258	48	8	3.02
37470.0	21.3499 13	292.2484 08	33.3526 02	.189177 06	.396935 03	11.083231 01	.436E-5 12	6.888825	51	8	3.36
37472.0	31.1200 14	285.6788 07	33.3513 02	.189252 05	.563419 03	11.083255 03	.425E-5 22	6.888183	41	8	3.87
37474.0	40.8785 19	279.1107 10	33.3506 03	.189300 09	.729958 05	11.083276 03	.255E-5 12	6.887766	36	8	4.92
37476.0	50.6400 13	272.5463 07	33.3494 02	.189385 05	.896509 02	11.083289 01	.942E-6 54	6.887033	32	8	3.06
37478.0	60.3940 27	265.9751 16	33.3474 04	.189418 10	.063093 05	11.083295 03	.82E-6 10	6.886752	21	8	5.78
37480.0	70.1489 29	259.4036 15	33.3463 03	.189450 08	.229684 04	11.083298 03	.51E-6 16	6.886475	19	8	5.02

T (MJD)	ω	Ω	i	e	M	n	$n'/2$	q	N	D	σ	
37482.0	79.9071	23 252.8298	11	33.3453	04 .189479	06	.396277	04	11.083296	01	.576E-6	75
37484.0	89.6654	18 246.2588	08	33.3451	03 .189497	06	.562868	03	11.083302	01	.151E-5	11
37486.0	99.4212	19 239.6880	11	33.3449	03 .189495	06	.729478	03	11.083313	02	.256E-5	11
37488.0	109.1747	13 233.1172	08	33.3452	02 .189457	04	.896110	02	11.083320	01	.2842E-5	62
37490.0	118.9310	13 226.5468	07	33.3458	03 .189408	04	.062756	02	11.083327	01	.3810E-5	74
37492.0	128.6915	14 219.9771	05	33.3466	02 .189352	04	.229421	02	11.083340	01	.4244E-5	72
37494.0	138.4593	20 213.4056	07	33.3473	03 .189306	07	.396112	04	11.083359	02	.629E-5	13
37496.0	148.2279	20 206.8338	08	33.3480	03 .189233	09	.562847	04	11.083382	02	.751E-5	15
37498.0	157.9989	19 200.2656	10	33.3500	04 .189129	13	.729625	06	11.083403	03	.599E-5	16
37500.0	167.7811	24 193.6969	12	33.3515	04 .189078	09	.896436	07	11.083410	04	.367E-5	19
37502.0	177.5614	32 187.1256	14	33.3522	04 .188976	08	.063276	07	11.083411	03	.192E-5	25
37504.0	187.3351	56 180.5630	26	33.3539	05 .188891	11	.230130	08	11.083422	03	.71E-6	17
37506.0	197.1260	49 173.9925	23	33.3547	03 .188820	10	.396960	07	11.083423	03	.15E-6	15
37508.0	206.9118	42 167.4245	21	33.3559	03 .188753	09	.563797	06	11.083418	03	.279E-6	85
37510.0	216.7023	47 160.8552	24	33.3568	03 .188698	11	.730625	07	11.083420	04	.23E-6	15
37512.0	226.4941	32 154.2879	17	33.3581	02 .188659	09	.897446	06	11.083405	03	-.13E-6	21
37514.0	236.2988	39 147.7179	22	33.3589	04 .188630	09	.064227	06	11.083400	02	.212E-5	24
37516.0	246.1058	25 141.1459	18	33.3603	04 .188626	07	.231035	05	11.083414	04	.117E-5	23
37518.0	255.9025	13 134.5775	15	33.3611	03 .188591	05	.397865	03	11.083414	02	.93E-6	33
37520.0	265.6989	12 128.0118	10	33.3612	03 .188588	05	.564700	02	11.083420	01	.122E-5	17
37522.0	275.4920	30 121.4464	15	33.3606	05 .188611	09	.731558	07	11.083434	04	.204E-5	23
37524.0	285.2631	13 114.8818	24	33.3592	15 .188693	38	.898525	50	11.083473	14	.311E-5	17
37526.0	295.0690	73 108.3122	10	33.3593	06 .188691	25	.065375	30	11.083431	10	.328E-5	21
37528.0	304.8778	13 101.7418	07	33.3595	03 .188674	07	.232240	03	11.083450	02	.341E-5	14
37530.0	314.6805	10 95.1723	07	33.3589	04 .188714	03	.399158	02	11.083471	02	.291E-5	20
37532.0	324.4757	14 88.6044	08	33.3582	04 .188755	03	.566117	03	11.083487	01	.233E-5	12
37534.0	334.2631	17 82.0353	09	33.3580	05 .188804	06	.733113	03	11.083503	01	.210E-5	14
37536.0	344.0625	23 75.4652	06	33.3576	07 .188863	08	.900093	06	11.083498	03	-.15E-6	29
37538.0	353.8451	34 68.8970	05	33.3572	08 .188945	15	.067121	15	11.083503	07	-.116E-5	36
37540.0	361.6151	82 62.3286	11	33.3557	08 .189075	28	.234191	36	11.083534	19	-.132E-5	22
37542.0	13.3888	63 55.7593	09	33.3541	06 .189160	20	.401226	28	11.083522	11	.2E-7	11

T (MJD)	w	Q	1	e	M	n	n'/2	q	N	D	σ
37544.0	23.1506 72	49.1887 08	33.3523 04	*189271 18	*568313 31	11.083490 12	*46E-6 14	6.887923	52	8	1.90
37546.0	32.9517 12	42.6179 05	33.3511 02	.189256 06	.735227 04	11.083532 02	*15E-6 12	6.888033	66	8	2.37
37548.0	42.7147 08	36.0467 05	33.3502 02	*189295 05	*902297 02	11.083535 02	*67E-6 26	6.887695	51	8	2.39
37550.0	52.4732 09	29.4765 08	33.3492 03	*189323 07	*069361 02	11.083547 01	*175E-5 17	6.887453	48	8	3.40
37552.0	62.2280 07	22.9062 05	33.3495 02	*189374 05	*236496 01	11.083564 00	*275E-5 10	6.887014	53	8	3.31
37554.0	71.9790 07	16.3364 06	33.3492 02	*189405 05	*403641 02	11.083578 01	*416E-5 14	6.886743	42	8	2.86
37556.0	81.7320 06	9.7675 05	33.3490 02	*189428 04	*570813 01	11.083595 00	*4440E-5 76	6.886541	62	8	3.16
37558.0	91.4852 07	3.1986 06	33.3490 02	*189435 04	*738020 01	11.083612 00	*4388E-5 64	6.886473	58	8	3.40
37560.0	101.2420 13	356.6290 10	33.3492 02	*189438 05	*905257 02	11.083621 01	*323E-5 11	6.886443	38	8	3.51
37562.0	111.0015 31	350.0623 21	33.3494 02	*189441 07	.072505 04	11.083629 02	*2731E-5 78	6.886647	33	8	3.57
37564.0											
37566.0	130.5153 25	336.9242 18	33.3498 02	*189276 06	*407068 04	11.083642 02	-47E-7 78	6.887813	28	8	3.04
37568.0	140.2741 21	330.3542 19	33.3505 03	*189203 05	*574350 03	11.083634 02	-21E-6 12	6.888437	32	8	3.69
37570.0	150.0422 21	323.7834 17	33.3515 04	*189145 09	*741612 04	11.083633 02	*94E-6 14	6.888928	41	8	5.95
37572.0	159.8161 15	317.2119 11	33.3528 04	*189054 08	*908862 03	11.083634 01	*343E-5 12	6.889706	43	8	4.95
37574.0	169.5914 11	310.6432 08	33.3537 03	*188978 06	*076137 02	11.083645 01	*456E-5 13	6.890345	76	8	4.31
37576.0	179.3689 09	304.0748 06	33.3550 03	*188901 05	*243437 02	11.083656 01	*5133E-5 73	6.890998	106	8	4.29
37578.0	189.1509 07	297.5064 04	33.3563 02	*188820 04	*410767 02	11.083671 01	*5860E-5 92	6.891680	119	8	3.91
37580.0	198.9362 07	290.9379 03	33.3573 02	*188724 04	*578131 02	11.083693 01	*6219E-5 77	6.892485	120	8	3.30
37582.0	208.7249 07	284.3695 03	33.3586 02	*188648 05	*745537 02	11.083717 01	*615E-5 11	6.893123	86	8	2.13
37584.0	218.5175 04	277.8018 04	33.3595 02	*188593 05	*912973 03	11.083728 01	*5717E-5 60	6.893583	73	8	1.66
37586.0	228.3065 11	271.2339 04	33.3599 02	*188551 07	*060473 03	11.083750 01	*4818E-5 82	6.893932	62	8	1.23
37588.0	238.1074 15	264.6657 07	33.3598 03	*188489 08	*247969 04	11.083776 02	*3719E-5 84	6.894448	60	8	1.71
37590.0	247.9028 09	258.0984 03	33.3604 02	*188468 04	*415515 03	11.083778 01	*2558E-5 64	6.894621	59	8	1.35
37592.0	257.7033 08	251.5305 04	33.3604 02	*188442 04	*583065 02	11.083779 01	*2585E-5 75	6.894846	64	8	1.79
37594.0	267.5059 06	244.9613 04	33.3605 01	*188424 03	*750633 02	11.083791 02	*202E-5 13	6.894991	53	8	1.54
37596.0	277.3064 06	238.3959 04	33.3602 01	*188380 03	*918216 02	11.083799 01	*1630E-5 70	6.895364	57	8	1.86
37598.0	287.1067 11	231.8267 07	33.3600 02	*188392 04	*085816 03	11.083810 01	*3510E-5 85	6.895259	54	8	3.05
37600.0	296.9040 16	225.2604 08	33.3591 03	*188390 06	*253450 05	11.083830 03	*663E-5 14	6.895261	56	8	3.39
37602.0	306.7005 18	218.6916 09	33.3579 03	*188425 06	*421149 06	11.083861 03	*552E-5 13	6.894958	73	8	4.91

T (MJD)	w	Q	1	e	M	n	n ^{1/2}	q	w	D	c	
37604.0	316.5014	08	212.1240	04	33.3571	01	•188472	03	.5988882	03	11.083880	01
37606.0	326.2939	08	205.5557	04	33.3560	01	•188511	03	.756652	03	11.083886	01
37608.0	336.0880	08	198.9879	03	33.3548	01	•188569	02	.924437	03	11.083903	01
37610.0	345.8762	13	192.4195	04	33.3532	01	•188639	03	.092269	05	11.083924	02
37612.0	355.6610	13	185.8514	03	33.3515	01	•188704	03	.260152	05	11.083958	02
37614.0	5.4417	16	179.2821	03	33.3499	01	•188778	03	.428103	06	11.083983	03
37616.0	15.2224	12	172.7125	03	33.3478	02	•188849	03	.596098	05	11.084008	02
37618.0	25.0012	09	166.1427	04	33.3464	02	•188934	04	.764143	03	11.084034	02
37620.0	34.7775	10	159.5731	05	33.3454	02	•188998	04	.932236	04	11.084062	02
37622.0	44.5463	22	153.0033	06	33.3442	02	•189061	04	.100395	07	11.084089	03
37624.0	54.3191	17	146.4327	04	33.3435	01	•189126	03	.2668587	06	11.084112	03
37626.0	64.0748	06	139.8625	06	35.3427	01	•189143	05	.436858	13	11.084139	06
37628.0	73.8377	18	133.2904	05	33.3424	02	•189155	04	.605115	07	11.084148	03
37630.0	83.5895	12	126.7181	06	33.3426	02	•189163	05	.773430	05	11.084159	02
37632.0	93.3432	08	120.1469	05	33.3429	02	•189165	05	.941758	04	11.084172	02
37634.0	103.0983	07	113.5750	05	33.3435	02	•189177	04	.110121	03	11.084190	02
37636.0	112.8542	11	107.0038	06	33.3443	02	•189152	05	.278525	05	11.084218	02
37638.0	122.6114	12	100.4320	07	33.3457	02	•189124	05	.447011	05	11.084247	02
37640.0	132.3718	13	93.8610	07	33.3481	02	•189082	06	.615544	05	11.084261	02
37642.0	142.1382	14	87.2942	07	33.3499	02	•188994	05	.784093	05	11.084282	03
37644.0	152.9074	13	80.7264	06	33.3514	02	•188900	04	.952689	04	11.084309	02
37646.0	161.6783	17	74.1579	07	33.3531	02	•188807	06	.121330	06	11.084337	03
37648.0	171.4503	23	67.5891	10	33.3546	03	•188740	07	.290023	07	11.084353	03
37650.0	181.2364	26	61.0203	11	33.3571	03	•188660	07	.458710	08	11.084253	03
37652.0	191.0333	32	54.4502	13	33.3600	04	•188578	07	.627388	09	11.084340	03
37654.0	200.8263	16	47.8832	07	33.3611	02	•188504	03	.796080	04	11.084340	02
37656.0	210.6211	23	41.3164	09	33.3621	03	•188426	04	.964770	07	11.084341	03
37658.0	220.4217	25	34.7491	08	33.3627	03	•188356	04	.133449	07	11.084360	03
37660.0	230.2159	24	28.1817	05	33.3639	03	•188300	03	.302169	07	11.084375	03
37662.0	240.0072	22	21.6155	04	33.3647	03	•188260	03	.470931	07	11.084389	03
37664.0	249.8025	21	15.0494	03	33.3652	03	•188234	02	.639720	06	11.084403	03

Satellite 1960 Iota 2

SAO MEAN ELEMENTS

14 March - 29 April 1961

T (ND)	Ω	ω	i	e	M	n	$n^{1/2}$	q	N	D	σ
37372.0	285.694	12	314.0698	06	47.2335	05	.010746	06	.515750	34	•133E-5 14
37374.0	292.003	14	307.8677	06	47.2333	06	.010774	07	.908765	37	12.196531
37376.0	298.294	13	301.6653	05	47.2330	06	.010801	07	.301837	37	12.196556
37378.0	304.581	16	295.4627	05	47.2324	05	.010836	07	.694922	43	12.196565
37380.0	310.811	16	289.2594	04	47.2321	04	.010878	06	.088165	44	12.196607
37382.0	316.992	19	283.0569	04	47.2317	04	.010912	06	.481526	52	12.196683
37384.0	323.140	16	276.8540	03	47.2317	02	.010962	04	.874973	44	12.196703
37386.0	329.305	22	270.6519	03	47.2312	03	.011016	05	.268380	59	12.196678
37388.0	335.441	34	264.4494	07	47.2312	04	.011078	06	.661877	92	12.196779
37390.0	341.549	34	258.2442	07	47.2299	05	.011148	06	.055461	93	12.196869
37392.0	347.619	31	252.0401	07	47.2293	05	.011218	05	.449149	85	12.196935
37394.0	350.629	30	245.8356	07	47.2298	05	.011290	05	.843000	83	12.196908
37396.0	359.575	27	239.6343	06	47.2294	05	.011357	04	.227017	75	12.197031
37398.0	5.438	26	233.4326	06	47.2295	05	.011414	04	.631260	72	12.197063
37400.0	11.324	28	227.2309	07	47.2300	05	.011482	04	.025439	77	12.197094
37402.0	17.191	26	221.0281	07	47.2299	05	.011548	04	.419679	72	12.197135
37404.0	22.994	26	214.8256	07	47.2300	04	.011610	04	.814099	72	12.197216
37406.0	28.838	28	208.6239	08	47.2302	04	.011668	04	.208412	77	12.197173
37408.0	34.663	26	202.4226	07	47.2300	04	.011726	05	.602775	70	12.197204
37410.0	40.453	30	196.2218	05	47.2297	05	.011782	05	.997237	81	12.197219
37412.0	46.228	31	190.0218	08	47.2297	04	.011839	05	.391733	87	12.197345
37414.0	51.881	29	183.8185	05	47.2301	03	.011877	05	.786570	79	12.197380
37416.0	57.536	28	177.6163	05	47.2296	03	.011915	05	.181404	77	12.197454
37418.0	63.217	27	171.4130	05	47.2295	03	.011954	05	.576177	75	12.197417

T (MJD)	w	Ω	u	M	n	$n^{1/2}$	q	N	D	σ
37420.0	68.876 36	165.2093 05	47.2294 04	.011979 07	.971019 97	12.197395 20	.172E-5 16	7.875884	50	8 4.94
37422.0	74.437 19	159.0062 04	47.2287 03	.011987 03	.366141 53	12.197332 20	.12E-6 14	7.875848	57	8 4.38
37424.0	80.195 22	152.8020 04	47.2287 03	.012001 03	.760719 59	12.197428 26	-.100E-5 14	7.875690	65	8 4.48
37426.0	85.868 27	146.5984 04	47.2283 03	.012014 02	.155523 73	12.197369 46	-.90E-6 12	7.875614	65	8 4.31
37428.0	91.490 27	140.3956 04	47.2281 03	.012021 02	.550453 75	12.197498 32	.50E-6 12	7.875502	69	8 5.15
37430.0	96.995 28	134.1935 04	47.2281 03	.012021 02	.945712 77	12.197554 32	.1572E-5 97	7.875478	72	8 4.64
37432.0	102.452 25	127.9917 04	47.2282 03	.012021 03	.341114 69	12.197419 26	.372E-6 85	7.875534	87	8 4.94
37434.0	108.147 18	121.7881 03	47.2287 02	.011998 03	.735875 49	12.197405 17	-.5888E-6 83	7.875728	111	8 4.98
37436.0	113.808 17	115.5843 04	47.2290 03	.011975 03	.130730 47	12.197398 19	-.115E-5 12	7.875911	101	8 5.03
37438.0	119.437 18	109.3817 04	47.2291 03	.011948 04	.525661 49	12.197432 18	-.151E-5 10	7.876110	94	8 5.11
37440.0	125.097 20	103.1795 04	47.2297 03	.011911 04	.920502 55	12.197410 15	-.141E-5 11	7.876413	90	8 4.89
37442.0	130.743 26	96.9770 05	47.2296 03	.011875 05	.315375 72	12.197340 23	-.85E-6 13	7.876733	68	8 4.56
37444.0	136.465 31	90.7744 07	47.2297 03	.011827 05	.710042 87	12.197295 21	-.36E-6 11	7.877134	66	8 4.39
37446.0	142.268 29	84.5742 06	47.2305 02	.011763 05	.104493 80	12.197260 14	-.64E-6 10	7.877664	49	8 3.95
37448.0	147.978 34	78.3726 07	47.2309 03	.011716 06	.499207 93	12.197280 16	-.152E-5 11	7.878028	33	8 3.73
37450.0	153.780 23	72.1715 05	47.2315 02	.011643 04	.893666 64	12.197303 12	-.1967E-5 77	7.878596	26	8 2.12
37452.0	159.526 25	65.9682 05	47.2323 03	.011591 04	.288279 68	12.197202 15	-.2372E-5 84	7.879055	35	8 3.16
37454.0	165.403 23	59.7666 05	47.2323 04	.011522 04	.682522 64	12.197096 13	-.2126E-5 89	7.879650	40	8 3.31
37456.0	171.338 29	53.5645 07	47.2321 05	.011452 04	.076600 79	12.197010 28	-.161E-5 15	7.880249	34	8 3.19
37458.0	177.277 28	47.3621 07	47.2324 05	.011385 04	.470671 78	12.196989 20	-.862E-6 90	7.880790	35	8 3.21
37460.0	183.289 37	41.1606 06	47.2316 06	.011312 05	.86454 10	12.196971 14	-.66E-6 12	7.881382	33	8 3.18
37462.0	189.134 50	34.9604 10	47.2331 08	.011271 08	.25888 14	12.196944 29	-.111E-5 17	7.881716	29	8 3.26
37464.0	195.227 36	28.7557 07	47.2336 06	.011190 06	.652550 99	12.196907 24	-.179E-5 18	7.882378	48	8 4.19
37466.0	201.286 26	22.5531 05	47.2339 05	.011122 05	.046309 72	12.196858 18	-.213E-5 15	7.882944	53	8 3.96
37468.0	207.400 25	16.3508 05	47.2345 04	.011055 05	.439911 70	12.196775 17	-.191E-5 12	7.883514	53	8 3.86
37470.0	213.529 26	10.1486 04	47.2348 04	.010999 05	.833463 70	12.196728 15	-.124E-5 11	7.883985	66	8 4.30
37472.0	219.662 24	3.9465 03	47.2345 03	.010950 04	.227002 66	12.196694 16	-.13E-6 10	7.884390	61	8 4.21
37474.0	225.872 27	357.7440 04	47.2343 04	.010900 05	.620342 75	12.196658 24	.3E-7 13	7.884797	53	8 4.47
37476.0	232.066 33	351.5412 05	47.2338 05	.010865 06	.013735 89	12.196630 22	.8E-7 15	7.885094	45	8 4.57
37478.0										
37480.0										

T (MJD)	ω	Ω	1	e	M	n	n'/2	q	W	D	σ
37482.0											4.29
37484.0											3.81
37486.0											3.93
37488.0	269.821 20	314.3263 07	47.2341 07	.010735 06	* 372455 56	12.196509 16	* 111E-5 11	7.886182	58	8	
37490.0	276.159 21	308.1244 07	47.2346 06	.010740 05	* 765462 57	12.196547 22	* 48E-6 11	7.886128	58	8	
37492.0	282.414 19	301.9223 06	47.2340 04	.010758 05	* 158701 52	12.196603 14	* 26E-6 11	7.885960	59	8	
37494.0	288.683 20	295.7210 07	47.2336 04	.010786 05	* 551902 55	12.196594 15	* 47E-6 11	7.885740	55	8	4.08
37496.0	294.957 19	289.5179 05	47.2322 03	.010819 04	* 945094 51	12.196533 14	* 35E-6 12	7.885503	60	8	3.95
37498.0	301.217 15	283.3169 04	47.2320 02	.010853 03	* 338324 41	12.196597 12	* 393E-6 76	7.885198	89	8	3.85
37500.0	307.455 15	277.1152 03	47.2319 02	.010894 03	* 731608 40	12.196671 12	* 477E-6 92	7.884846	110	8	4.10
37502.0	313.678 13	270.9127 03	47.2319 02	.010934 03	* 124935 34	12.196700 10	* 1086E-5 64	7.884514	117	8	3.67
37504.0	319.815 14	264.7104 03	47.2319 02	.010983 03	* 518504 38	12.196782 10	* 1441E-5 75	7.884088	127	8	3.92
37506.0	325.987 19	258.5083 03	47.2316 02	.011032 03	* 911989 51	12.196794 15	* 1447E-5 78	7.883687	119	8	4.44
37508.0	332.148 25	252.3054 03	47.2311 03	.011084 04	* 305513 69	12.196819 21	* 67E-6 13	7.883267	96	8	4.40
37510.0	338.216 18	246.1025 03	47.2306 03	.011153 04	* 699293 50	12.196819 12	* 238E-6 71	7.882716	99	8	4.35
37512.0	344.329 17	239.8993 03	47.2298 03	.011223 04	* 092949 47	12.196888 17	* 54E-6 11	7.882127	83	8	4.39
37514.0	350.371 21	233.6961 06	47.2292 04	.011282 08	* 486787 58	12.197054 29	* 95E-6 15	7.881581	68	8	6.66
37516.0	356.326 13	227.4941 04	47.2291 03	.011357 06	* 880865 36	12.197061 15	* 215E-5 10	7.880986	87	8	5.74
37518.0	2.262 13	221.2921 04	47.2290 03	.011441 05	* 275006 35	12.197124 16	* 222E-5 11	7.880289	80	8	5.25
37520.0	8.203 11	215.0896 04	47.2288 02	.011525 04	* 669145 32	12.197040 12	* 254E-6 75	7.879653	99	8	4.31
37522.0	14.160 11	208.8864 04	47.2284 02	.011593 03	* 063241 32	12.197091 11	* 222E-6 94	7.879087	105	8	4.20
37524.0	20.055 13	202.6827 04	47.2284 02	.011662 03	* 457507 37	12.197203 13	* 21E-7 83	7.878493	105	8	4.28
37526.0	25.859 13	196.4790 04	47.2287 02	.011722 04	* 852024 38	12.197267 11	* 250E-6 84	7.877987	102	8	4.30
37528.0	31.629 13	190.2763 04	47.2289 03	.011784 04	* 246623 38	12.197336 10	* 43E-7 90	7.877464	87	8	4.08
37530.0	37.394 13	184.0739 04	47.2291 02	.011847 04	* 641231 38	12.197328 11	* 954E-6 86	7.876959	82	8	3.66
37532.0	43.146 13	177.8713 04	47.2294 03	.011904 03	* 035879 36	12.197314 15	* 940E-6 96	7.876511	65	8	2.75
37534.0	48.890 13	171.6699 05	47.2301 02	.011949 04	* 430553 38	12.197345 11	* 50E-6 10	7.876138	61	8	3.00
37536.0	54.566 14	165.4678 05	47.2304 02	.011993 04	* 825416 40	12.197408 11	* 54E-6 12	7.875765	47	8	2.69
37538.0	60.255 19	159.2654 06	47.2302 03	.012022 07	* 220236 53	12.197402 15	* 54E-6 14	7.875533	38	8	3.25
37540.0	65.907 25	153.0633 08	47.2301 04	.012064 10	* 615147 69	12.197479 12	* 6E-7 13	7.875165	41	8	4.43
37542.0	71.534 17	146.8625 08	47.2291 03	.012086 07	* 010126 47	12.197499 10	* 127E-6 94	7.874982	53	8	3.55

T (MJD)	ω	Ω	1	e	M	n	$n'/2$	q	N	D	σ	
37544.0	77.185	17	140.6599	07	47.2291	04	.012103	06	.405043	46	12.197475	11
37546.0	82.813	13	134.4577	05	47.2292	03	.012115	04	.800018	35	12.197421	10
37548.0	88.476	13	128.2557	04	47.2291	04	.012118	04	.194896	37	12.197438	11
37550.0	94.080	15	122.0531	04	47.2287	04	.012115	05	.589944	43	12.197524	10
37552.0	99.717	15	115.8495	04	47.2287	04	.012114	04	.984903	42	12.197508	10
37554.0	105.339	17	109.6461	03	47.2286	05	.012102	05	.379901	47	12.197514	13
37556.0	110.969	17	103.4422	03	47.2299	03	.012087	04	.774867	47	12.197485	12
37558.0	116.605	17	97.2393	03	47.2306	02	.012059	04	.169812	48	12.197453	12
37560.0	122.268	17	91.0369	02	47.2312	02	.012027	03	.564681	49	12.197415	12
37562.0	127.959	20	84.8342	02	47.2311	02	.011989	03	.959478	57	12.197399	12
37564.0	133.666	26	78.6312	03	47.2311	02	.011946	04	.354233	74	12.197390	18
37566.0	139.473	41	72.4253	05	47.2305	03	.011900	04	.74872	12	12.197291	25
37568.0	145.411	71	66.2224	07	47.2296	06	.011852	06	.14283	20	12.197106	50
37570.0	151.293	67	60.0183	06	47.2288	08	.011804	05	.53709	19	12.197168	40
37572.0	157.080	49	53.8158	05	47.2305	06	.011737	03	.93160	14	12.197240	29
37574.0	162.843	33	47.6146	03	47.6146	03	.011671	02	.326186	94	12.197165	33
37576.0	168.695	22	41.4125	03	47.2330	02	.011602	01	.720529	61	12.197080	23
37578.0	174.587	19	35.2106	04	47.2336	02	.011537	01	.114770	54	12.197059	21
37580.0	180.531	17	29.0095	03	47.2345	02	.011469	01	.011469	48	12.197004	19
37582.0	186.525	17	22.8069	03	47.2350	02	.011404	01	.902813	47	12.196921	19
37584.0	192.579	18	16.6050	04	47.2353	02	.011339	01	.296589	49	12.196840	22
37586.0	198.681	19	10.4029	04	47.2355	02	.011272	01	.690230	54	12.196800	18
37588.0	204.778	23	4.2012	05	47.2355	02	.011209	01	.083884	64	12.196751	22
37590.0	210.870	27	357.9993	06	47.2356	03	.011144	02	.477562	76	12.196751	22
37592.0	217.051	34	351.7974	05	47.2357	04	.011088	02	.871002	94	12.196738	28
37594.0	223.254	52	345.5956	06	47.2357	05	.011034	02	.26438	15	12.196535	47
37596.0	229.474	53	339.3931	05	47.2352	05	.010987	02	.657772	15	12.196529	37
37598.0	235.702	77	333.1907	08	47.2342	07	.010948	02	.05103	22	12.196587	52
37600.0	241.84	10	326.9875	10	47.2334	08	.010910	03	.44459	29	12.196741	11
37602.0	248.176	62	320.7858	08	47.2339	06	.010883	03	.83760	18	12.196617	44

T (MJD)	ω	Ω	i	e	M	n	n'/2	q	N	D	σ	
37604.0	254.606	7.8	314.5848	09	47.2337	05	•010840	03	•23034	22	•126E-5	16
37606.0	260.846	4.5	308.3817	04	47.2336	04	•010830	02	•62364	13	12.196557	54
37608.0	267.198	3.5	302.1788	03	47.2333	04	•010824	02	•016626	97	12.196436	41
37610.0	273.532	3.5	295.9760	03	47.2336	04	•010823	02	•409669	99	12.196497	35
37612.0	279.853	4.1	289.7737	04	47.2337	05	•010833	02	•80275	11	12.196595	35
37614.0	286.279	5.1	283.5720	06	47.2332	06	•010841	03	•19552	14	12.196609	32
37616.0	292.631	4.2	277.3710	05	47.2330	04	•010850	03	•58850	12	12.196586	24
37618.0	298.759	4.6	271.1680	06	47.2335	05	•010888	03	•98212	13	12.196625	32
37620.0	304.982	4.4	264.9648	05	47.2340	05	•010927	03	•37548	12	12.196588	25
37622.0	311.188	4.7	258.7631	07	47.2348	07	•010968	03	•76890	13	12.196513	39
37624.0	317.548	2.8	252.5580	05	47.2324	03	•011016	02	•161893	78	12.196682	21
37626.0	323.795	2.9	246.3552	05	47.2312	03	•011064	02	•555192	81	12.196753	26
37628.0	329.960	2.7	240.1536	05	47.2309	03	•011120	02	•948719	75	12.196760	25
37630.0	336.095	2.0	233.9516	04	47.2306	02	•011182	01	•342329	57	12.196837	20
37632.0	342.162	2.0	227.7507	04	47.2307	02	•011247	01	•736134	57	12.196878	21
37634.0	348.217	1.8	221.5486	03	47.2306	01	•011313	01	•129983	50	12.196965	18
37636.0	354.248	1.9	215.3462	03	47.2306	02	•011381	01	•523906	54	12.196959	17
37638.0	353.18	2.0	209.1440	02	47.2304	02	•011449	02	•917906	51	12.196975	16
37640.0	6.264	2.0	202.9421	03	47.2300	02	•011515	02	•311894	55	12.197017	20
37642.0	12.219	1.8	196.7399	03	47.2297	02	•011587	02	•706034	52	12.197088	24
37644.0	18.063	1.7	190.5369	03	47.2291	02	•011653	02	•100488	47	12.197222	15
37646.0	23.885	1.7	184.3338	04	47.2289	02	•011720	02	•494998	47	12.197287	15
37648.0	29.617	1.3	178.1300	03	47.2285	02	•011799	03	•889771	36	12.197342	13
37650.0	35.388	1.1	171.9267	03	47.2283	02	•011844	03	•284434	32	12.197361	13
37652.0	41.123	1.2	165.7239	04	47.2279	02	•011896	04	•679205	33	12.197408	14
37654.0	46.864	1.1	159.5203	04	47.2280	02	•011933	05	•073958	30	12.197412	11
37656.0	52.561	0.9	153.3162	04	47.2281	03	•011967	05	•468827	27	12.197462	12
37658.0	58.255	1.1	147.1133	04	47.2292	03	•012011	05	•863701	30	12.197436	13
37660.0	63.917	0.9	140.9104	03	47.2299	02	•012040	05	•258657	24	12.197472	09
37662.0	69.5663	0.9	134.7079	04	47.2298	02	•012063	05	•653650	24	12.197489	13
37664.0									•69E-6	14	7.875170	90

SAO MEAN ELEMENTS

Satellite 1961 Delta 1

18 February - 30 March 1961

T (MJD)	<i>b</i>	<i>w</i>	<i>Q</i>	<i>i</i>	<i>e</i>	<i>M</i>	<i>n</i>	<i>n</i> ^{1/2}	<i>q</i>	<i>N</i>	<i>D</i>	<i>σ</i>
37348.0	106.5406	20	165.7300	12	38.8615	03	•122108	10	•629919	05	12.159994	96
37350.0	116.0192	15	158.4475	07	38.8618	02	•121851	07	•950072	04	12.160142	96
37352.0	125.4986	16	151.1691	07	38.8613	02	•121618	07	•270395	04	12.160182	94
37354.0	134.9979	14	143.8904	06	38.8615	02	•121341	06	•590869	04	12.160292	93
37356.0	144.5026	17	136.6168	10	38.8619	03	•121061	05	•911528	04	12.160353	93
37358.0	154.0149	37	129.3426	20	38.8622	05	•120771	08	•232328	08	12.160460	97
37360.0	163.5584	34	122.0625	19	38.8655	05	•120480	09	•553364	08	12.160617	97
37362.0	173.0947	22	114.7879	10	38.8671	05	•120220	08	•874730	06	12.160737	94
37364.0	182.6197	30	107.5158	12	38.8650	09	•119987	12	•196273	10	12.160825	97
37366.0	192.1650	14	100.2417	05	38.8686	03	•119687	04	•518117	04	12.161010	94
37368.0	201.7064	14	92.9719	04	38.8688	03	•119451	06	•840185	05	12.161080	94
37370.0	211.2627	19	85.7010	06	38.8680	04	•119222	06	•162530	06	12.161249	96
37372.0	220.8209	22	78.4277	07	38.8667	04	•118986	05	•485062	07	12.161297	96
37374.0	230.3658	14	71.1586	05	38.8668	03	•118756	05	•807745	05	12.161376	94
37376.0	239.9173	13	63.8889	10	38.8664	03	•118523	06	•130568	05	12.161440	95
37378.0	249.4467	11	56.6151	08	38.8662	02	•118344	05	•453517	04	12.161522	93
37380.0	259.0233	10	49.3471	05	38.8657	02	•118126	03	•776698	03	12.161654	93
37382.0	268.5781	17	42.0770	07	38.8643	02	•117924	05	•100151	05	12.161805	10
37384.0	278.1436	32	34.8069	09	38.8634	02	•117738	05	•423863	11	12.161944	09
37386.0	287.7066	11	27.5366	04	38.8585	02	•117571	04	•747990	03	12.162225	04
37388.0	297.2508	30	20.2681	08	38.8623	03	•117389	07	•072902	10	12.162612	09

T (MJD)	ω	Ω	i	e	M	n	n'/2	q	N	D	σ	
37390.0	306.795	24	13.0002	18	38.8618	06	.117234	16	.398424	83	12.162977	81
37392.0	316.367	17	5.7313	12	38.8614	05	.117095	11	.724463	59	12.163145	33
37394.0	325.9509	19	358.4557	07	38.8606	04	.116980	04	.051031	05	12.163417	06
37396.0	335.5091	17	351.1962	06	38.8598	03	.116881	04	.377969	05	12.163538	04
37398.0	345.0623	21	343.9281	05	38.8596	04	.116802	05	.705170	07	12.163660	05
37400.0	354.6122	27	336.6613	06	38.8589	04	.116730	06	.032610	08	12.163777	06
37402.0	4.1590	23	329.3953	06	38.8581	04	.116659	04	.360231	07	12.163832	05
37404.0	13.6905	35	322.1284	10	38.8567	06	.116616	07	.687987	11	12.163940	12
37406.0	23.2152	33	314.8617	07	38.8553	05	.116531	07	.016117	10	12.164116	12
37408.0	32.7336	25	307.5958	04	38.8533	04	.116456	06	.344463	08	12.164225	08
37410.0	42.2300	20	300.3230	04	38.8521	03	.116403	05	.673039	06	12.164334	05
37412.0	51.7258	27	293.0651	06	38.8505	04	.116319	06	.001774	08	12.164408	07
37414.0	61.2325	33	285.7994	09	38.8492	05	.116222	06	.330710	10	12.164546	07
37416.0	70.731	11	278.5319	14	38.8477	14	.116115	09	.659993	37	12.164744	42
37418.0	80.205	10	271.2628	11	38.8461	04	.115943	09	.989739	36	12.164856	24
37420.0	89.7288	57	263.9950	13	38.8459	04	.115817	10	.319615	21	12.165008	37
37422.0	99.2030	42	256.7287	10	38.8457	04	.115609	07	.649959	12	12.165155	10
37424.0	108.7263	29	249.4620	06	38.8447	03	.115428	06	.980365	08	12.165276	07
37426.0	118.2180	27	242.1979	07	38.8458	03	.115283	05	.311078	08	12.165407	08
37428.0	127.7300	26	234.9343	05	38.8464	02	.115105	04	.641997	08	12.165469	06
37430.0	137.2504	38	227.6700	07	38.8475	03	.114912	05	.972969	12	12.165482	10
37432.0	146.7801	27	220.4072	06	38.8489	02	.114733	04	.304020	08	12.165598	08
37434.0	156.3075	15	213.1447	04	38.8495	02	.114565	02	.635321	05	12.165706	04
37436.0	165.8449	15	205.8824	03	38.8498	01	.114387	02	.966821	05	12.165809	03
37438.0	175.3910	18	198.6205	04	38.8502	02	.114211	02	.298558	06	12.165919	05
37440.0	184.9449	12	191.3587	03	38.8503	02	.114055	01	.630585	04	12.166127	03
37442.0	194.5144	17	184.0952	04	38.8500	02	.113891	02	.963087	06	12.166421	05
37444.0	204.0716	25	176.8303	05	38.8500	02	.113759	04	.296294	09	12.166781	08
37446.0	213.6398	31	169.5663	08	38.8473	03	.113607	05	.630140	10	12.167047	10
37448.0	223.2045	15	162.3035	04	38.8463	02	.113470	04	.964617	05	12.167392	05
37450.0	232.7572	23	155.0363	04	38.8463	01	.113316	05	.299658	08	12.167636	07

T (MJD)	w	Ω	ι	e	M	n	n'	q	N	D	σ
37452.0	242.3040 22	147.7706 04	38.8464 01	.113165 04	.625250 08	12.167936 07	.6791E-4 29	7.080145 107	4	3.19	
37454.0	251.8576 13	140.5050 02	38.8467 01	.113017 02	.971363 05	12.168159 04	.5869E-4 24	7.081236 213	4	2.61	
37456.0	261.4169 09	133.2397 02	38.8468 01	.112861 02	.307927 03	12.168403 03	.5602E-4 21	7.082390 229	4	2.69	
37458.0	270.9674 03	125.9735 01	38.8468 00	.112713 01	.644967 01	12.168625 01	.37847E-4 94	7.083489 124	4	.95	
37460.0	280.5180 03	118.7081 01	38.8462 00	.112568 01	.813609 01	12.168881 01	.1987E-4 11	7.084126 106	4	.74	
37462.0	290.0684 13	111.4436 05	38.8450 02	.112425 05	.319703 04	12.168695 03	-.104E-5 42	7.085755 62	4	3.35	
37464.0	299.6258 11	104.1805 04	38.8447 02	.112280 04	.657071 03	12.168884 04	-.273E-5 41	7.086919 94	4	3.27	
37466.0	309.1745 13	96.9186 04	38.8439 02	.112163 03	.994450 04	12.168712 03	.1158E-4 41	7.087846 87	4	3.07	
37468.0	318.7316 54	89.6569 06	38.8433 03	.112047 06	.331882 18	12.168728 17	.1399E-4 86	7.088760 44	4	2.80	
37470.0	328.2799 35	82.3947 08	38.8431 05	.111935 06	.669470 10	12.168841 11	.247E-4 11	7.089611 39	4	2.70	
37472.0	337.8366 23	75.1338 08	38.8430 04	.111845 07	.007254 07	12.168989 06	.5486E-4 56	7.090271 29	4	3.24	
37474.0	347.3561 42	67.8769 10	38.8409 04	.111744 09	.345521 10	12.169191 05	.1387E-4 51	7.091002 19	4	2.69	
37476.0	356.9240 39	60.6151 10	38.8412 04	.111718 09	.683833 11	12.169191 08	.302E-5 45	7.091212 21	4	2.92	
37478.0	6.4652 46	53.3542 14	38.8404 07	.111653 08	.022224 12	12.169202 11	-.86E-5 15	7.091724 22	4	3.87	
37480.0											
37482.0	25.5259 11	38.8345 03	38.8391 01	.111539 02	.698965 04	12.169133 06	-.218E-4 29	7.092656 194	4	1.71	
37484.0	35.0516 07	31.5778 01	38.8389 01	.111515 01	.037215 02	12.169110 03	-.1186E-4 71	7.092857 229	4	1.74	
37486.0	44.5633 08	24.3202 01	38.8381 01	.111458 02	.375437 02	12.169112 03	.426E-5 55	7.093317 96	4	1.33	
37488.0	54.0695 14	17.0635 02	38.8368 03	.111413 02	.713697 05	12.169138 03	-.161E-5 45	7.093668 91	4	1.57	
37490.0	63.5714 18	9.8043 03	38.8349 02	.111363 03	.051964 06	12.169129 06	.332E-5 33	7.094068 61	4	1.54	
37492.0	73.0706 25	2.5461 07	38.8341 04	.111265 04	.390273 08	12.169172 07	.1384E-4 48	7.094836 63	4	3.23	
37494.0	82.5757 34	355.2862 10	38.8343 05	.111131 05	.728689 11	12.169282 07	.6271E-4 82	7.095858 62	4	3.44	
37496.0	92.0767 42	348.0273 13	38.8339 05	.111003 06	.067575 13	12.169581 10	.4722E-4 68	7.096768 33	4	3.84	
37498.0	101.5662 49	340.7668 18	38.8328 06	.110857 08	.406908 16	12.169715 15	.596E-4 13	7.097882 38	4	4.91	
37500.0	111.0605 29	333.5127 06	38.8344 03	.110722 04	.746680 08	12.169997 08	.5675E-4 66	7.098846 76	4	3.37	
37502.0	120.5789 23	326.2554 05	38.8346 02	.110578 03	.086842 07	12.170159 06	.4298E-4 50	7.099933 95	4	3.55	
37504.0	130.1089 32	318.9984 07	38.8347 03	.110421 04	.427304 09	12.170298 08	.3486E-4 71	7.101129 58	4	4.44	
37506.0	139.6379 44	311.7423 08	38.8354 04	.110258 04	.768049 13	12.170424 12	.366E-4 11	7.102387 39	4	3.87	
37508.0	149.1595 35	304.4878 06	38.8367 03	.110108 04	.109171 10	12.170706 08	.5819E-4 56	7.103472 37	4	3.48	
37510.0	158.6933 38	297.2317 06	38.8373 02	.109951 03	.450692 11	12.170786 10	.1824E-4 44	7.104695 35	4	3.26	

Satellite 1961 Delta 1

1 August - 30 September 1961

(MJD)	ω	Ω	i	e	M	α	δ	η	Δ	σ
37512.0	168.2437	32.289.9763	05	38.8375	02	•109799	02	•792329	10	•1214E-4 91
37514.0	177.8007	09	282.7209	01	38.8383	01	•109654	01	•134090	03
37516.0	187.3673	20	275.4649	03	38.8393	01	•109524	02	•476095	06
37518.0	196.9187	22	268.2078	03	38.8389	02	•109412	02	•818399	07
37520.0	206.4881	29	260.9526	05	38.8383	02	•109268	03	•160914	10
37522.0	216.0601	37	253.6959	07	38.8372	03	•109140	03	•503868	12
37524.0	225.6364	43	246.4267	07	38.8363	03	•109020	05	•847430	15
37526.0	235.2161	41	239.1787	05	38.8365	03	•108896	05	•191591	14
37528.0	244.8023	34	231.9208	05	38.8368	02	•108760	05	•536365	12
37530.0	254.3858	26	224.6626	05	38.8366	02	•108602	05	•881747	09
37532.0	263.9583	16	217.4048	04	38.8362	02	•108468	03	•227782	05
37534.0	273.5326	18	210.1470	04	38.8355	02	•108347	04	•574271	06
37536.0	283.1081	21	202.8888	04	38.8339	02	•108225	04	•920959	07
37538.0	292.6857	19	195.6313	04	38.8337	02	•108115	03	•267735	06
37540.0	302.2689	34	188.3749	07	38.8332	03	•108025	05	•614567	10
37542.0	311.8485	47	181.1190	08	38.8314	03	•107938	06	•961442	14
37544.0	321.4191	39	173.8626	06	38.8305	02	•107873	05	•308466	11
37546.0	330.9942	26	166.6070	05	38.8297	02	•107832	03	•655548	07
37548.0	340.5647	21	159.3519	04	38.8290	02	•107806	02	•002697	06
37550.0	350.1414	24	152.0967	05	38.8285	02	•107790	03	•349960	07
37552.0	359.7171	35	144.8426	05	38.8281	03	•107784	03	•697427	10
37554.0	9.2839	39	137.5884	05	38.8272	03	•107784	03	•045261	11
37556.0	18.8410	39	130.3331	05	38.8265	03	•107788	03	•393530	12
37558.0	28.3812	39	123.0774	06	38.8258	04	•107810	04	•742290	12
37560.0	37.9206	32	115.8221	06	38.8261	03	•107829	03	•091494	10
37562.0	47.4527	36	108.5669	04	38.8260	03	•107846	03	•441118	11
37564.0	56.9743	42	101.3110	04	38.8253	03	•107849	03	•791082	13
37566.0	66.4917	35	94.0543	04	38.8243	03	•107834	03	•141295	11
37568.0	76.0008	24	86.7974	04	38.8232	02	•107798	03	•491781	07
37570.0	85.4965	50	79.5391	08	38.8229	03	•107741	08	•842593	17
37572.0	95.0031	15	72.2832	02	38.8226	02	•107642	04	•193586	05

T (MJD)	w	Ω	1	e	M	n	$n^{1/2}$	q	N	D	σ	
37574.0	104.5092	37	65.0266	08	38.8219	04	*107508	07	.544927	12	12.175840	08
37576.0	114.0082	33	57.7684	07	38.8220	03	*107384	04	.896745	11	12.175939	09
37578.0	123.5222	28	50.5125	05	38.8222	03	*107241	03	.248766	09	12.176081	07
37580.0	133.0482	35	43.2571	07	38.8226	04	*107084	05	.601085	11	12.176234	10
37582.0	142.5829	27	36.0022	04	38.8235	02	*106904	03	.953749	08	12.176416	08
37584.0	152.1216	26	28.7477	04	38.8243	02	*106732	02	.306788	07	12.176623	07
37586.0	161.6687	24	21.4923	04	38.8248	04	*106558	02	.660305	07	12.176884	05
37588.0	171.2258	22	14.2369	04	38.8252	01	*106386	02	.014260	06	12.177061	05
37590.0	180.7910	24	6.9810	05	38.8262	02	*106221	02	.368498	07	12.177177	05
37592.0	190.3768	41	359.7252	07	38.8279	03	*106081	03	.722935	12	12.177272	10
37594.0	199.9632	40	352.4715	07	38.8284	03	*105945	03	.077672	12	12.177445	09
37596.0	209.5383	48	345.2162	11	38.8274	03	*106078	04	.432736	15	12.177552	10
37598.0	219.1478	48	337.9624	10	38.8276	04	*105699	03	.787935	14	12.177646	11
37600.0	228.7609	59	330.7081	08	38.8285	06	*105593	03	.143416	18	12.177845	15
37602.0	238.3720	67	323.4541	07	38.8302	06	*105498	04	*499538	21	12.178285	26
37604.0	247.9683	45	316.2005	04	38.8297	04	*105418	02	.856206	13	12.178390	10
37606.0	257.5686	57	308.9467	04	38.8294	03	*105342	02	*213081	16	12.178458	13
37608.0	267.1951	38	301.6915	03	38.8289	03	*105282	02	.570113	11	12.178579	12
37610.0	276.8073	49	294.4373	06	38.8283	04	*105241	03	.927436	14	12.178744	10
37612.0	286.4188	43	287.1826	06	38.8282	04	*105206	02	*285137	12	12.178960	08
37614.0	296.0330	28	279.9278	08	38.8278	04	*105181	02	.643236	08	12.179138	07
37616.0	305.6398	30	272.6714	08	38.8269	03	*105172	02	*001720	09	12.179341	09
37618.0	315.2559	37	265.4167	08	38.8257	03	*105179	02	*360555	11	12.179508	07
37620.0	325.8758	54	258.1609	09	38.8243	03	*105210	02	*719715	17	12.179669	15
37622.0	334.4576	56	250.9017	08	38.8253	03	*105270	02	*079322	17	12.179858	09
37624.0	344.0666	41	243.6450	06	38.8245	02	*105350	02	*439268	12	12.180083	10
37626.0	353.6652	48	236.3886	05	38.8234	02	*105434	02	*799629	14	12.180300	14
37628.0	3.2387	58	229.1316	06	38.8224	02	*105536	03	.160451	17	12.180497	13
37630.0	12.8216	40	221.8736	05	38.8215	02	*105660	02	*521675	12	12.180750	12
37632.0	22.3793	29	214.6144	04	38.8211	02	*105785	02	*883463	09	12.181031	09

T (MJD)	ω	Ω	i	e	M	n	$n^{1/2}$	q	N	D	σ	
37634.0	31.9293	27	207.3542	04	38.8208	02	.105909	.02	.245778	.09	12.181305	.07
37636.0	41.4665	21	200.0939	04	38.8201	02	.106031	.02	.608847	.07	12.181756	.07
37638.0	51.0004	29	192.8319	05	38.8183	03	.106137	.03	.972781	.10	12.182099	.07
37640.0	60.5269	27	185.5678	04	38.8163	02	.106221	.03	.337284	.09	12.182381	.09
37642.0	70.0400	27	178.3019	04	38.8150	02	.106267	.03	.702363	.09	12.182644	.09
37644.0	79.5242	32	171.0363	06	38.8143	02	.106285	.03	.067981	.11	12.182895	.09
37646.0	89.0189	29	163.7695	07	38.8151	02	.106259	.04	.434035	.10	12.183131	.09
37648.0	98.5246	28	156.5020	06	38.8154	02	.106193	.04	.800466	.10	12.183290	.08
37650.0	108.0364	32	149.2356	06	38.8156	03	.106091	.05	.167241	.11	12.183475	.11
37652.0	117.5520	38	141.9688	05	38.8164	03	.105978	.05	.534362	.13	12.183618	.10
37654.0	127.0732	38	134.7034	06	38.8179	03	.105834	.05	.901764	.12	12.183760	.09
37656.0	136.5981	36	127.4404	05	38.8193	03	.105665	.05	.269371	.11	12.183829	.13
37658.0	146.1298	35	120.1785	04	38.8199	02	.105498	.04	.637126	.11	12.183916	.08
37660.0	155.6754	26	112.9162	04	38.8199	01	.105320	.03	.005006	.08	12.183972	.07
37662.0	165.2350	21	105.6542	04	38.8201	01	.105134	.02	.373037	.06	12.184071	.06
37664.0	174.8032	29	98.3927	06	38.8207	02	.104956	.03	.741268	.09	12.184163	.08

NOTICE

This series of Special Reports was instituted under the supervision of Dr. F. L. Whipple, Director of the Astrophysical Observatory of the Smithsonian Institution, shortly after the launching of the first artificial earth satellite on October 4, 1957. Contributions come from the Staff of the Observatory. First issued to ensure the immediate dissemination of data for satellite tracking, the Reports have continued to provide a rapid distribution of catalogues of satellite observations, orbital information, and preliminary results of data analyses prior to formal publication in the appropriate journals.

Edited and produced under the supervision of Mr. E. N. Hayes, the Reports are indexed by the Science and Technology Division of the Library of Congress, and are regularly distributed to all institutions participating in the U. S. space research program and to individual scientists who request them from the Administrative Officer, Technical Information, Smithsonian Astrophysical Observatory, Cambridge 38, Massachusetts.

